National Safety News

BREATHES for the asphyxiated patient . . .

AIDS the patient to full recovery . . .

Automatically—Safely

THE M.S.A. PNEOLATOR

Better chances of Recovery in all cases of

RESPIRATORY FAILURE

Here is one of the most important contributions to the field of life-saving in a decade—the M.S.A. Pneolator.

The Pneolator assures maximum chance of recovery to workers overcome by electric shock, poisonous and irritant gases or asphyxiated from any other causes. It automatically provides oxygen for the lungs at the pre-selected amount and pressure, continuously, rhythmically, effectively, and safely—most nearly simulating natural breathing.

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NOTE: *The first few minutes after breathing has ceased are the most critical. Immediate application of manual artificial respiration should be started and continued until Pneolator is in use.*

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BRADDOCK, THOMAS AND MEADE STS., PITTSBURGH 8, PA.

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Call the M.S.A. man on your every safety problem . . . his job is to help you

MSA

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(For use only by professional or adequately trained personnel and not intended to replace manually applied resuscitation)

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Lightweight and Comfortable

Can be used with any WILLSON single filter respirators for dusts, mists, gases, vapors. Available without respirator.

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NATIONAL SAFETY NEWS

JULY 1951 Vol. 63, No. 7

THE COVER: Two pipefitters in oxygen breathing apparatus, looking like "men from Mars," safely descend into gas area to repair a broken gas line connection. (Courtesy Weirton Steel Employees Bulletin)

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29,150 copies of this issue were printed.

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NATIONAL SAFETY NEWS is published monthly by National Safety Council. Copyright 1951 by National Safety Council. Printed in U.S.A. Entered as second class matter June 21, 1921, at the Post Office at Chicago, Illinois, under the act of March 3, 1879. Subscription rate: To members, $5.50 per year, single copies 55 cents; to non-members, $7.50 per year, single copies, 75 cents. Quantity prices for yearly subscriptions and single issues on request. Member Audit Bureau of Circulation. Indexed in Industrial Arts Index.

Statements and opinions advanced in signed articles are personal expressions of the authors, not necessarily those of the National Safety Council.

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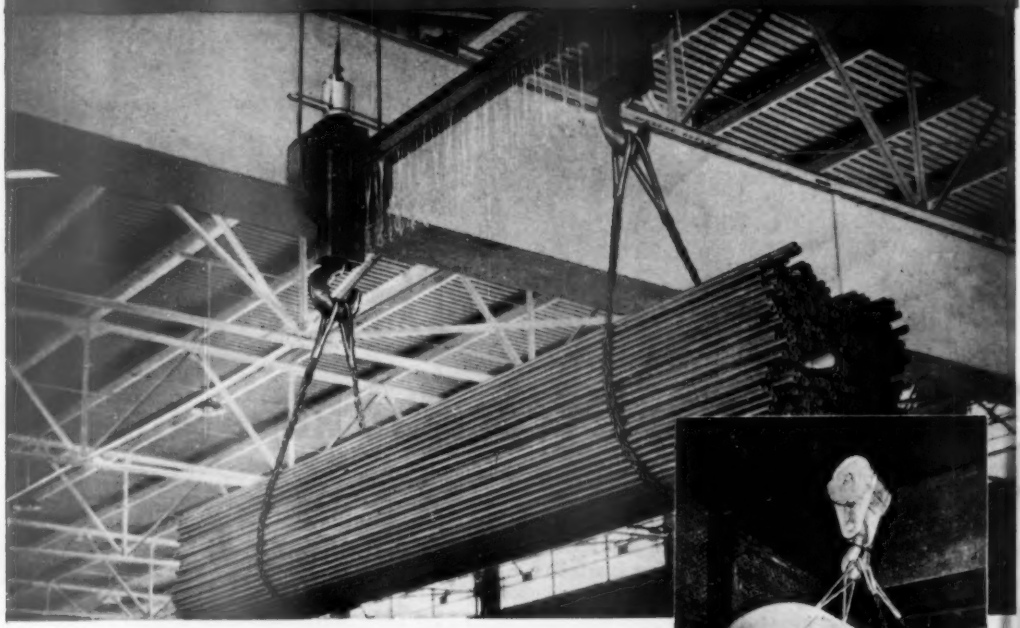

Macwhyte DREW Type 1 Flat-Braided Slings handle loose bundle of steel pipe

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WIRE ROPE SLING DEPARTMENT

Made by the Originators of Preformed WIRE ROPE

TRADE MARK

In Business for Your Safety

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On jobs where the air is foul or hot, men can't be blamed too much for letting up now and then. If you want to keep their efficiency and morale high, feed them better air.

Employers have learned the value of putting Coppus Blowers and Ventilators on the job . . . in confined areas and near furnaces or hot processes. The men work faster, do better work, work longer without fatigue — and appreciate the more comfortable working conditions.

Give some thought now to the "hot spots" in your plant. There is a Coppus Blower for practically any requirement — Cable Manhole and Tank Ventilators, Boiler Manhole Blowers and Exhausters, Heat Killers, Shiphold Ventilators, etc. The Coppus "Blue Ribbon" is your assurance of design and construction planned for plenty of severe service. Check and mail the coupon for specific information. Coppus Engineering Corp., Worcester 2, Mass. Sales Offices in THOMAS' REGISTER. Other "Blue Ribbon" Products in BEST'S SAFETY DIRECTORY, CHEMICAL ENGINEERING CATALOG, REFINERY CATALOG.

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Please send me information on the Blowers that clear the air for action.

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- ☐ exhausters, welding fumes.
- ☐ stirring up stagnant air wherever men are working or material is drying.

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SAFETY TROUBLE: Accidents on the slippery floors of your building make you liable to claims for heavy damages. The end result is wrangling with lawyers, ill will and a time-consuming nuisance. The Legge System of Safety Floor Maintenance does away with needless hazards. The Legge System keeps your floors both brightly polished *and* slip-resistant. The anti-slip qualities of Legge Safety floor cleaners and polishes have been certified by repeated Underwriters' Laboratories tests.

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Legge Safety Engineers instruct your crews in the proper reconditioning of your floors. Then they lay out a program of light upkeep that saves you labor, material and unjustified expense. Incidentally, this service is *free*—it goes with your purchase of Legge materials.

We're not asking that you "pull rank" on your maintenance man. But you'd be wise to suggest tactfully that he get in touch with Legge without delay. As a first step, clip the coupon to your letterhead and mail today for a free copy of a revealing booklet on scientific floor care. There's no obligation—so why not do it now? WALTER G. LEGGE COMPANY, INC., New York 17, N. Y. Branch offices in principal cities. In Toronto—J. W. Turner Co.

N-7

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Please send me a free, no-obligation copy of your Mr. Higby book.

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Title_____

Types of flooring_____

Area_____sq. ft.

YOU'RE SAFE WHEN YOU HAVE LEGGE TO STAND ON

LEGGE SYSTEM
of Safety Floor Maintenance

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for industrial *First Aid*

MERCUROCHROME*

(H. W. & D. BRAND OF MERBROMIN, DIBROMOXYMERCURIFLUORESCEIN-SODIUM)

Do not neglect wounds, however small; even scratches and small cuts may become infected if they are not promptly and properly treated.

'Mercurochrome' (H.W. & D. brand of merbromin, dibromoxymercurifluorescein-sodium) is one of the best antiseptics for first aid use. It is accepted by the Council on Pharmacy and Chemistry of the American Medical Association for this purpose.

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'Mercurochrome' solution keeps indefinitely; the color shows where it has been applied.

Physicians have used 'Mercurochrome' for more than 28 years.

Be sure to include 'Mercurochrome' in your first aid supplies.

*Reg. U. S. Pat. Off.

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HWD & BALTIMORE, MARYLAND

1 SELL EYE SAFETY TO EMPLOYEES
Ask your distributor's representative to show you the kit of posters, pay envelope inserts, PA system scripts and other material that sells workers forcefully on *desire to use* proper safety eyewear.

2 SAFETY GLASSES FOR EACH JOB
A complete range of Bausch & Lomb safety eyewear, engineered to meet the most rigid tests for each job classification in your plant.

3 PROTECTION *PLUS* CORRECTION
For at least 50% of your workers prescription lenses are necessary to working efficiency as well as to safety. Your B&L distributor offers prompt prescription service on all types of industrial eyewear.

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The graphic story pictured above is one from a dramatic series by Bausch & Lomb designed to make your employees *want to use* safety eyewear wherever ruled. It's the all-important educational phase of Bausch & Lomb's *total* eye safety service. Write Bausch & Lomb Optical Company, 681-7 St. Paul St., Rochester 2, New York, for complete information on a total eye service.

BAUSCH & LOMB *Safety Eyewear*

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Because telephone service is so essential, we'd like to talk to you very frankly about two things that make it possible. They are reasonable rates and earnings.

Without reasonable rates, there is no way to continue the good service you know today. Without reasonable earnings, there is no way to make it better.

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BELL TELEPHONE SYSTEM

B R E C K

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Kidde

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with **Ves-Cote**
FLOOR WAX

There is new safety in walking when floors are finished with Ves-Cote . . . because Ves-Cote contains a new and proven anti-slip agent, DuPont's "Ludox"* colloidal silica. These minute particles of "Ludox"* colloidal silica create excellent sole and heel traction—offer effective **braking action** for each step.

In addition to safety, Ves-Cote dries to a high luster; is long-wearing; water-resistant; easy to apply and dries quickly.

If you need **safe** floors, yet demand **attractive** floors—Ves-Cote is your answer.

* Trademark of E. I. Du Pont de Nemours & Co., Inc.

ANTI-SLIP PROTECTION

When you step on Ves-Cote, the weight of the foot forces the hard "Ludox" colloidal silica spheres into the wax particles, prowiding superior **braking action.** This way, Ves-Cote gives greater slip protection.

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- ☐ Send me a FREE copy of FLOOR FACTS—A guide for treatment and maintenance of all types of floors.

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Approved by the Underwriters Laboratories.

VESTAL INC. 4963 Manchester St. Louis 10, Mo.

A NEW NAME FOR SAFETY
FROM ONE OF AMERICA'S
OLDEST LENS MAKERS!

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TRADE MARK

SAFETY LENSES

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They offer a high quality of protection, assured by more than a quarter century's experience in precision lens making.

Order them *direct*. Save with safety!

PENNSYLVANIA OPTICAL COMPANY • READING, PA.

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*PENOPTIC is the trade name of Pennsylvania Optical Company

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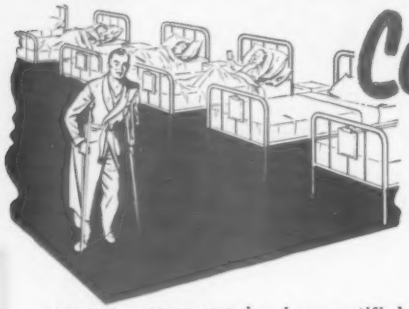
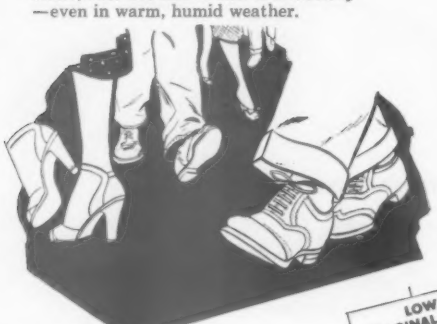
Contains No Wax!



New WHIZ CHECK-SLIP is different! It gives you positive anti-slip protection—without sacrificing the other important qualities of a high-grade floor finish. CHECK-SLIP means long wear, high lustre, better coverage, and no floor discoloration. CHECK-SLIP is economical, too. It actually costs less!

ANTI-SLIP—CHECK-SLIP has been certified "anti-slip" by Underwriters' Laboratories, Inc. Yet CHECK-SLIP is not sticky—even in warm, humid weather.



HARD AND LUSTROUS—SELF-POLISHING CHECK-SLIP dries quickly to a hard, bright finish. Does not leave soft film and does not collect dirt.

LONG-WEARING—CHECK-SLIP gives lasting protection under all kinds of service, on all floors, including rubber and asphalt tile, terrazzo, linoleum and wood.

3-WAY ECONOMY—(1) CHECK-SLIP gives better coverage, gallon for gallon. (2) CHECK-SLIP can be diluted after the first two coats. (3) CHECK-SLIP is economical to maintain, easy to remove.

MORE CHECK-SLIP FEATURES

- FINISH RENEWED BY BUFFING
- NOT SELF-CONTAMINATING
- NON-INFLAMMABLE
- CONVENIENT SIZES: 1, 5, 30, 55 GAL.

Try CHECK-SLIP yourself . . . Ask your wholesaler for WHIZ CHECK-SLIP or write today!

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Whiz

New! DYNAMIC

RATE COMPENSATION FIRE DETECTION

No other like it! For plants, all commercial and public buildings, institutions, ships.

With the unique Fenwal DETECT-A-FIRE Detector you get a temperature-sensitive stainless steel *shell* that is the activating component. Never too early! Never too late! It's Rate-Compensated —an entirely new principle of fire detection. Write now for details. Put *dynamic* fire detection to work for you.

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NO SLEEPING ON THE JOB! Fixed-Temperature detectors have an inherent time lag due to time required to absorb heat.

NO FALSE ALARMS! Rate-of-Rise detectors may false alarm under non-fire conditions.

DYNAMIC! New DETECT-A-FIRE Detector is Rate-Compensated to give *dynamic* fire detection. No thermal lag. No false alarms.

ATTRACTIVE Fenwal DETECT-A-FIRE horizontal mount combines smart design with unique operation. Gives sensitive response to temperature at any rate of rise — non-response to fast temperature jumps below pre-determined alarm level.

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Company .....

Street .....

City ..... *Zone* ..... *State* .....

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Precise, DYNAMIC Fire Detection

FENWAL, INCORPORATED

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111 South Burlington Avenue, Los Angeles 4, Cal.

Temperature Control Engineers

No Other Safety Shoe as Dressy
No Other Dress Shoe as Safe as
HY-TEST SAFETY SHOES

FOR MEN

H712-2
Men's Brown Kip Medallion Tip Blucher Oxford. Lined Quarter. Weatherwear Sole, Half Rubber Heel.
Widths AA to EEE
Sizes to 13

H719
Men's Brown Side Woven Blucher Oxford. Lined Quarter. Weatherwear Sole, Half Rubber Heel.
Widths A to E
Sizes to 13

H735-1
Men's Burgundy Side Moccasin Type Blucher Oxford. Lined Quarter. Neocork Sole and Heel.
Widths AA to EEE
Sizes to 13

H802
Women's Brown Elk Finish Moccasin Type Oxford. Vitalized Leather Sole, 8/8 Leather Rubber Top Piece Heel.
Widths AA to D
Sizes to 11

H803
Women's Brown Elk Strap Pump. Vitalized Leather Sole, 8/8 Leather Rubber Top Piece.
Widths A to D
Sizes to 10

H807-1
Women's Black and White Saddle Oxford. Neocork Sole and Heel.
Widths AA to D
Sizes to 10

FOR WOMEN

. . . Insure Workers' Feet in Sure Protection

Men's shoes shown feature Hy-Test's Isco-Nap "Air Layer" vamp lining.

with
HY-TEST SAFETY SHOES

HY-TEST SAFETY SHOES

NATIONAL SAFETY NEWS

JULY, 1951

A Great Organization Speaks

THE UNITED STATES Chamber of Commerce has long been a wise and influential spokesman for business concerns, large and small. It has provided a channel for self-criticism in the business world and a means of encouraging forward-looking business leadership.

Recently the Chamber's Board of Directors spoke out on the subject of safety. At the recommendation of its Employer-Employee Relations Committee, the Board declared:

"Accident prevention and promotion of industrial health are paramount considerations for employers, especially during the current mobilization period. The conduct of any business should be so ordered as to place these matters foremost in the establishment of personnel policy and the development or improvement of the productive processes. Legislation regulating such matters should be regarded as minimum requirements, and should be a primary concern of the states.

"Every employer who reviews carefully his present safety program with a view to maximum improvement, or who installs such a program if he does not already have one in operation, makes an important contribution to the defense effort. Safety is a primary responsibility of management and should receive the earnest attention of top executives."

I hope that every businessman in America reads that statement and makes it a part of his personal business credo. And I particularly hope that the last sentence sticks in the memory of those who read it.

The pioneers of safety in this country were men of stature. A long line of other business leaders has kept alive the tradition that safety is the top man's business, and the National Safety Council exists today because many such men served it long and well.

As industry has grown, we have seen specialization carried far. And it is certainly one of the triumphs of the safety movement that today most large companies have professional safety men to guide and direct safety programs, to advise management on safety problems.

There are some companies, perhaps, where we have paid too high a price for the advantages of this specialization. The very competence of our safety engineers has sometimes encouraged the illusion that safety was a problem that could be handled by a staff agency—and kept away from the top bosses.

The statement of the Chamber of Commerce, by re-emphasizing top management's inescapable responsibility, *and great opportunity*, to help America through accident prevention, may well alert us all to the importance of the top executive's anticipation.

This, I am convinced, is one resolution which will prove to be something more than a statement of pious hope. It should serve as a mighty weapon in saving lives !

Ned H. Dearborn

The District Manager Appraises the

Safety Department

By NELSON C. WALKER

For aid in preventive maintenance of manpower, the safety department merits a high rating

NELSON C. WALKER *is District Manager, American Car and Foundry Company, Berwick, Pa. This article has been adapted from an address before the All-ACF Safety Conference, Chicago, October 16, 1950.*

A PRODUCTION MAN'S first responsibility is to keep his plant operating at an economic level of cost, utilizing all equipment to the fullest extent, and delivering manufactured products on schedule.

Chief among the factors that propel a manufacturing unit at this level is man power. In today's industrial world, operations such as we represent are heavily dependent on labor for their margin of profit. In other words, our margin of profitable operation is derived chiefly from our purchase of labor hours. Consequently, we are alert to provide the means for maintenance of man power effectiveness as well as preventive maintenance of machinery. An idle machine means increased overhead, and overhead is the ghost in industry's closet. It will get you if you don't watch out.

Recognizing the need for preventive maintenance of man power, we have provided a very special niche in our organization at Berwick for our safety department. Accordingly, I like to think of our safety department as our "3 S" unit. In our plant, when you have become coded, it signifies a real degree of importance. So let's analyze our coding for the safety department, and see what "3 S" stands for.

Three, mathematically, stands in third position in numerical sequence, and, hence, enjoys a prominent spot in every day life. To apply this numerical position to our safety department places that unit in a very important position in our plant.

The "S" from our alphabet represents more than meets the eye, and represents to us: *Science, Selection and Sound*:

1. *Science* in Accident Prevention.
2. *Selection* in Accident Remedy.
3. *Sound* administration application.

Now, let us analyze the 3 S's. Starting with the first phase, "Science in Accident Prevention":

The word "science" means: Possession of knowledge, as compared to ignorance or misunderstanding—as, science in nature's mysteries. It can mean—art or skill—a branch of study which is concerned with observation and classification of facts; such as, the establishment of verifiable general laws, chiefly by induction and hypothesis—as, for example, the biological, historical and mathematical sciences. Therefore, if we recognize the evidence derived from a scientific approach to accident prevention, we have developed our thinking to a point where we are ready for its application to industry.

The Scientific Approach

Accident prevention, scientifically applied, is a means by which we can solve the over-all safety problem through the same kind of reasoning that is successfully applied to other problems — problems, for example, in mathematics, where, if a rule is followed the correct answer always will be obtained.

The safety engineer or safety supervisor must be interested in knowing and applying all the rules pertinent to all factors leading to the final, correct answer of accident prevention. What are some of these factors we are speaking about? Let's classify some of them as follows:

1. Analysis of the unsafe act that leads to an accident.
2. Mechanical hazards and the reasons for their existence.
3. The antidote for mechanical hazards and the cataloging of corrective measures for reference.

The analysis of unsafe acts of persons for the purpose of achieving preventive control by the safety department is singularly the most important step of all phases under consideration. I have read numerous safety articles and books and attended many conferences on this subject, and a cross-section of opinion, gleaned from industrial experience, indicates that unsafe acts of persons are the direct and approximate causes of the majority of all industrial accidents. Therefore, this phase calls for particular attention.

Let us start by first plotting a course and then doing some mental spade work. I would be inclined to deal, right off the bat, with the general mental attitude of the worker. This subject covers a broad field.

It is my opinion that general good plant housekeeping and appearance are an important factor in mental guidance of the worker. The appearance of the grounds and the internal factory area establish the frame of mind in which workers approach their daily tasks. Strict adherence to well formulated rules and regulations governing in-plant personal conduct becomes the safety engineer's silent partner. Inasmuch as good housekeeping is a major factor in safety control, it is our opinion that the safety department should father it, and enforce it. Consequently, in Berwick the safety department is a staff department to the district manager, and it carries with it full authority for the enforcement of our housekeeping rules. Their word, in this matter, is law. We believe that, "a good housekeeper is a good worker," and we can prove it.

Production Planning

In Berwick the safety department sits in on all regularly scheduled production meetings. Jigs, fixtures, layouts, types of manpower especially when a new freight track-line-up is in the making *must* by all means bear the approval of the safety department. Aisle clearance for safe travel of hook-ons and proper clearances and travel areas for cranes is another responsibility earmarked for safety approval. Likewise palletizing and lifting devices must bear their approval.

This part of all production planning is a matter of routine, accepted and exploited by all department heads. If the safety department does not approve the housekeeping in a given department because of its apparent disregard for safety of the worker, our safety department is expected to warn the department head of the possibility of shut-down, and subsequently recommend such action to the district manager. In one instance, such recommendation was made at Berwick, and the department was shut down for one week while the whole clean-up and accident prevention program was revitalized. It paid large dividends because the effect was so deeply felt by all concerned.

Ability to "get along" with people is a necessary requisite for a good safety man. He must have an inherent love for human contact and reflect an abundance of understanding of his fellow-workers.

Job analysis will bring forth the difficulty often experienced in correcting unsafe practices. This step is one that ends with the selection of the man best fitted to perform the duties peculiar to the job. Job safety analysis showing operations and specific hazards of each operation is a daily routine. This advance appraisal is then used in safety discussions to establish points on which the worker shall be fully cautioned and instructed to avoid danger.

Let us not neglect the necessary education, emanating from regular departmental safety meetings where safety vigilance is stressed, thereby creating an ever-increasing understanding between shop personnel and safety department men.

The district manager must be ever alert to see that such a program is well-balanced, well-conducted and well-utilized. The 100 per cent enforcement of goggle wearing, proper conduct at the cupola, general good foundry prac-

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NATIONAL FARM SAFETY WEEK, 1951

By the President of the United States of America

A Proclamation

WHEREAS preventable accidents continue to kill thousands and injure hundreds of thousands of farm residents each year; and

WHEREAS such accidents deprive the Nation of needed manpower and destroy property vital to our defense; and

WHEREAS a careless or imprudent act is a factor in almost every accident on the farm; and

WHEREAS experience has established the fact that observance of safe practices in working and living can greatly reduce these losses:

NOW, THEREFORE, I, HARRY S. TRUMAN, President of the United States of America, do hereby call upon the Nation to observe the week commencing July 22, 1951, as National Farm Safety Week, and I urgently request each member of every farm family to adopt safe practices in every activity; to drive safely, work safely, and live safely. I also request all organizations and persons interested in farm life to join in a continuing program to encourage the idea that farming the safe way is farming the right way.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Seal of the United States of America to be affixed.

DONE at the City of Washington this second day of May in the year of our Lord nineteen hundred and fifty-one, and of the Independence of the United States of America the one hundred and seventy-fifth.

Harry S. Truman

By the President:

Dean Acheson

Secretary of State

SAFETY with a HIGH POLISH

By NORVAL BURCH

Batteries of cyclone installations, like those above, dot the roofs of the Kroehler buildings, sucking sawdust away from the production machines on the factory floors below and adding it to the fuel supply.

WHILE millions are admiring the gleaming finish of fine woods in the excellent furniture that graces the homes of the nation, statistically-minded safety men are conscious of the accident cost involved in its production.

No doubt about it, woodworking ranks among the more hazardous occupations. Among all industries reporting to the National Safety Council, wood products ranks only fifth above the worst in accident frequency . . . with 20 to 30 or more disabling injuries for each million man-hours worked.

So, when Dan Adair, staff engineer of the Council's Wood Products Section, came back from a trip to Kankakee, Ill., with a report of more than a million man-

Painted aisle-lines (left, below) mark definite limits for storage of materials in work and keep traffic lines open, while constant replacement of hardwood floors (center) reduces tripping hazards. Stair landing corners (bottom, right) are painted white.

Efficient exhaust hoods are found on all sawing, shaping and sanding operations. Open pulleys are guarded (left). If points of operation cannot be guarded, quick-acting jigs (above) or standardized work patterns (top, left) keep hands out of danger.

An example of the many specially-designed safety devices is this interlocking knife guard on a veneer clipper. Combined hold-down and guard is actuated by same air valve that trips lock on clutch pedal below.

hours without a disabling injury in the Kroehler Manufacturing Company's case goods plant there, I decided to investigate.

When I got down to Kankakee, Kroehler's Plant No. 3 was well past the million mark and still going strong. At the end of May, the record was 1,458,857 hours. It went on beyond one-and-a-half million hours early in June and plant officials were intensifying their efforts to reach an even more impressive total.

It was not surprising, of course, to learn that the enthusiastic support of top management was sparking the safety effort in all twelve Kroehler plants in the U.S. and Canada, and that this interest was reflected at all levels of supervision.

This interest was evident in the pleasant lunch-time chatter in the executive dining room, where officials of Plant 3 and Plant 4 gather at noon each day. With all his executives together at one huge table, it's a good time for Works Manager C. B. Kroehler to get progress reports, and many of his questions were concerned with the carrying out of safety orders.

One of the most encouraging aspects of the Plant 3 record, and in fact the lowered accident frequency in all 12 Kroehler plants, is the proof that something can be done about woodworking safety . . . proof that accident costs can be lowered and injuries diminished by making safety a part of management responsibility.

It hasn't been very long since frequency and severity rates in Kroehler plants were not a whole lot better than the average for the furniture industry, which was not good, to say the least.

Then D. L. Kroehler, president, while looking over the reports, decided something must be done about it. Safety of employees had always been a matter of prime importance in the company, but he felt the safety effort had not been fully effective. He appointed V. K. Anderson as safety director

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SCALE MODEL of one-story plant. Removable framework of trusses permits easy access to models of machinery and material-handling equipment when rearrangements are desired. Note railroad siding in left foreground. Use of scale models reveals handling-material hazards existing in layout. Aisle widths, overhead clearances, cross traffic, fall-down hazards, and cluttered areas stand out.

By ARMAND T. GAUDREAU

Planned FOR HANDLING MATERIALS

MANY industrial hazards are inherent in the plant layout. Often they can be avoided by adequate attention to safety in pre-planning.

More than 25 per cent of all plant accidents involve material handling. Of the main causes of material-handling injuries, two are concerned directly with plant layout:

1. In *manual* handling — resulting from cluttered floors, aisles and stairs.
2. In *mechanical* handling—due to poor layout of plant facilities.

The solution of these two problems lies in pre-planning for material-handling safety in the plant layout.

1. Built-In Safety

As soon as a production unit or material-handling device is positioned in the layout plans, the first question in the plant layout engineer's mind should be, "What about the safety angle?"

One of the main objectives in plant design is maximum efficiency in manufacturing operations. This cannot be attained without adequate provisions for safety. In the larger plants, management invariably insists that safety be built into the original layout. In the smaller plants, however, design is often approached on a piece-meal basis. As a result, many steps are taken separately without coordination in the over-all plan.

Use of three-dimensional scale models in the layout of floor areas permits visualization of hazards that will exist in the plant. Aisle widths, overhead clearances, cross-traffic intersections, blind corners and bottlenecks show up in the model layout. Ramps, inclines, fall-down hazards, cluttered areas and straining lifts at transfer points are also evident.

Before selecting equipment for any material-handling job, characteristics of the building should be studied. These characteristics include structural strength, storage space, ceiling heights, aisle widths,

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ARMAND T. GAUDREAU is Management Consultant, Gaudreau, Rimbach & Associates, Pittsburgh, Pa. This article has been adapted from an address before the joint meeting of The American Material Handling Society, Pittsburgh Chapter; American Society of Mechanical Engineers, Western Pennsylvania Chapter, and American Society of Safety Engineers at the Mellon Institute for Industrial Research, Pittsburgh, December 13, 1950. Mr. Gaudreau is co-author with R. W. Mallick of the book, *Plant Layout*, recently published by John Wiley & Sons.

EMPLOYEE ENTRANCE at an aircraft plant. Bus depots and overhead ramps permit movement of large numbers of employees from vehicles with comparative safety and protection from weather. Location of passenger loading stations at strategic points relieves congestion during rush hours. Note absence of rail and truck traffic.

column spacing, door clearances, overhead obstructions, elevator capacities, floor-load capacities, location of ducts, piping and conduits, and facilities for scrap disposal.

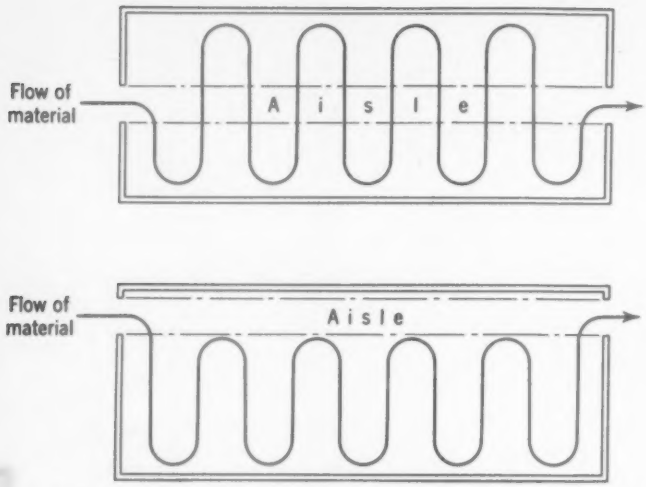
Local and state building codes help immeasurably in planning for safety. These restrictions may also be helpful in avoiding conditions which might require costly alterations to the building after operation has been started.

2. Plant Access

Entrances. In laying out plant railways and truck driveways, excessive grades and blind intersections should be avoided. Adequate clearances must be provided between rail cars or highway trucks and buildings and other fixed structures. The number of railroad crossings should be kept at a minimum. Separate plant entrances and exits should be provided for rail

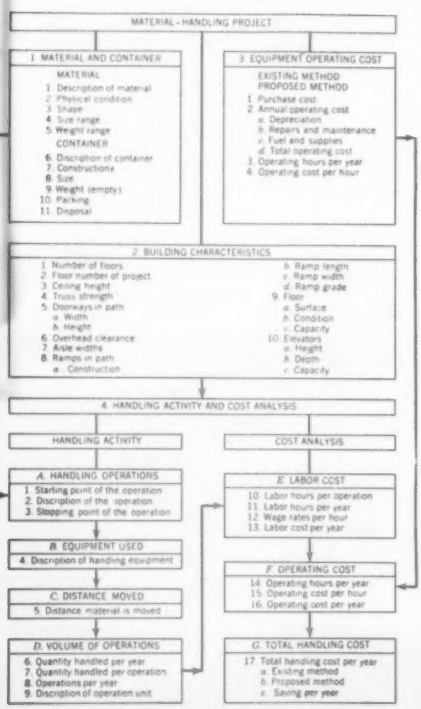
RAISED LEVEL of pedestrian lane along traffic aisle. Vehicular traffic is separated from foot traffic without increasing overall width of aisle. This arrangement is applicable where there are no cross aisles; as in tunnels and along walls.

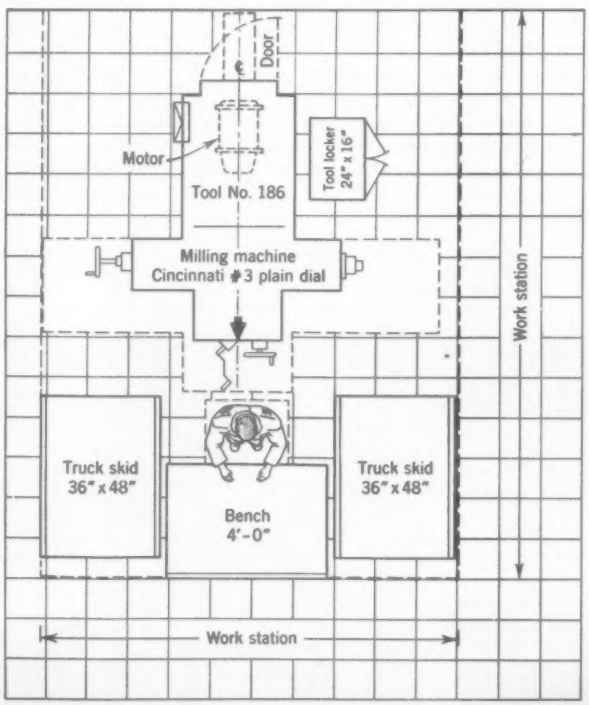
OVERHEAD WALKWAY for pedestrians. This provides safety for foot traffic by preventing contact with power trucks and other vehicular traffic on main aisles. It also permits greater utilization of floor space for manufacturing.



LOCATION of factory aisles in planning. Many a plant is bisected by an aisle running through the middle, as shown in upper half of sketch. Flow of material zig-zags back and forth across aisle in moving from machine to machine. Lower sketch shows same manufacturing area with aisle at one side. This permits full width of manufacturing space for processing without having material criss-cross across aisle and exposed to traffic hazards.

BELOW—LEFT: Chart of basic data for a material handling project. RIGHT: Work station layout for milling machine. Station includes area occupied by machine, tool locker, operator, bench, and two truck skids for material. From layouts of this type, material-handling methods can be predetermined for each handling, and safety features built in at blueprint stage.





traffic and truck traffic. Gates for pedestrians should be located at a safe distance from entrances for vehicular traffic.

Sidings. The surface level of loading docks served by railroad sidings should be flush with the floor level of freight cars. When a depressed track bisects the dock area, crossover bridges may be installed. These bridges may be power-operated and raised or lowered as needed. Their tonnage capacity permits free passage of power trucks or trains of trailers.

Stairs are preferable to ladders for access to overhead crane cabs, bridges and runways. They are also safer for reaching the tops of tanks, hoppers, boilers, elevator penthouses, balconies, galleries, and mezzanine floors.

Elevated structures from which falls may occur should be protected by adequate handrails, toeboards, wire screen enclosures, grating, or a combination of these safeguards. Places where this type of protection is needed include:

1. Platforms, catwalks, balconies, ramps and runways.

2. Stairways and stair landings.

3. Floor openings.

4. Wall openings with sills within 30 inches above the floor, or where floors are not on the same level on both sides of the opening.

5. Open excavations.

6. Openings to hoppers and chutes.

Toeboards prevent tools or materials from falling to levels underneath where men may be working or passing. Wire screen enclosures are recommended around elevated platforms where materials are stored.

Footwalks. To facilitate dismantling or overhauling machinery, provision should be made for overhead cranes, hoists, walkways, platforms, and space to accommodate materials and parts.

For maintenance of overhead bridge cranes, footwalks should be provided on both sides of the bridge or at the end of the crane runways. Where cranes are in continuous use, there should be a footwalk extending the length of the crane runway to permit operators entering or leaving the cab at any point. This footwalk should be reached by one or more fixed ladders not less than 20 inches wide.

Machine guards should be placed over all reciprocating or rotating parts of machinery wherever there is possibility of accidental contact. Such moving parts include belts, pulleys, gears, chains, shafts, clutches, drums and flywheels.

Floors. Requirements for safe and efficient service from floors include:

1. Floor systems and foundations should be strong enough to carry four times the static load and six times the moving load to which they will be subjected.

2. The floor should be of a type producing the least noise.

3. Flooring material should not become unduly slippery when in contact with materials to which it will be exposed, particularly if the material cannot be readily removed.

4. Where spillage of liquids is expected, as in dairies or canneries, floors should be graded and drained. These floors should be of low heat conductivity, durable, resilient, dustless, easily cleaned, and fire-resistant.

3. Aisle Layout

Free flow of materials and movement of personnel through a plant requires clearly-defined traffic lanes. These consist of main aisles, side aisles, cross aisles, ramps and passageways. Provisions must also be made for corners, curves and inclines.

As much attention should be given to laying out aisles as to positioning machinery and equipment. In many cases it is desirable to determine first the location and size of aisles and then lay out the machinery within their boundaries.

Aisles should be sufficiently wide to permit trucks to pass

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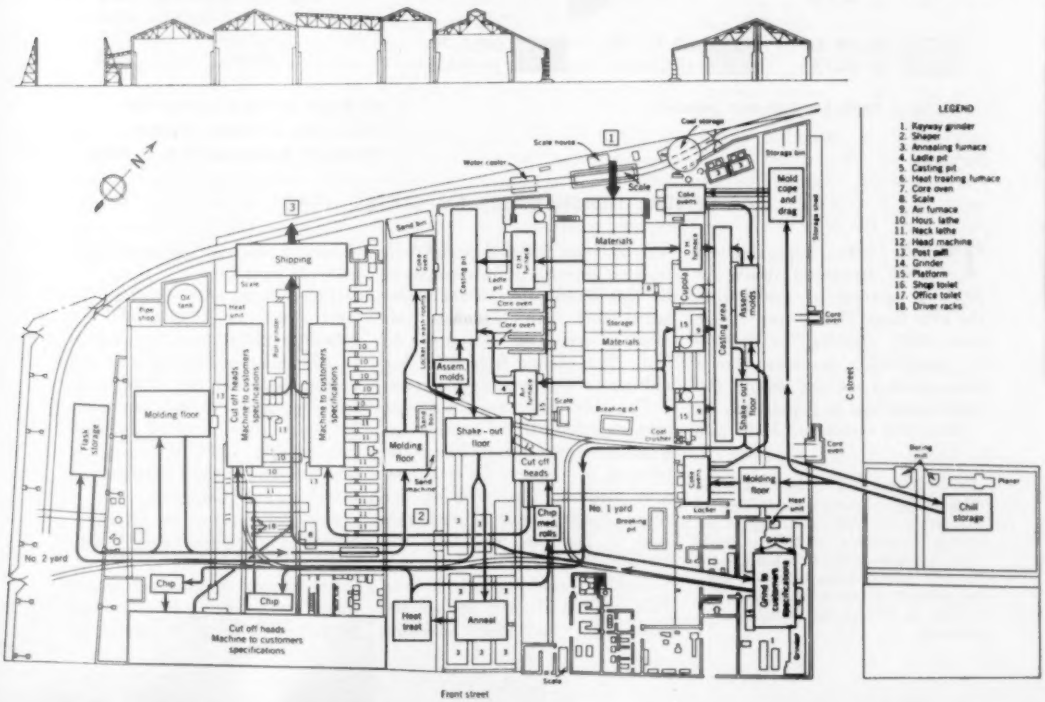
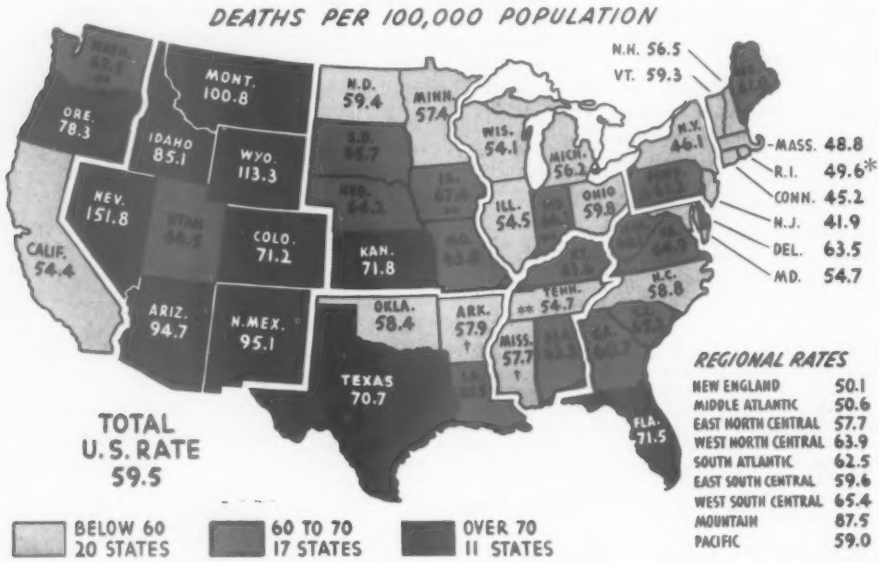
EXISTING layout of a foundry and machine shop. Course followed by material through plant is traced by heavy flow lines. Flow shows: (1. Top right) Incoming raw materials; (2. Center, near bottom) Dispersion of material to work in process; (3. Top left) Outgoing shipments. Along top margin are elevations of adjacent buildings showing clearances and column supports for cranes, and obstructions caused by intervening walls and material progresses from receiving dock to shipping platform. Analysis of flow reveals material-handling hazards along line of protection.



Fatalities Fewer in 1950

Accidental Death Totals 1% Below 1949

By A. D. BATTEY



● Source: Reports from State Health Departments

* 1948 National Office of Vital Statistics data

** Estimate, based on incomplete information

† 1949 based on deaths as reported by the states

ACCIDENTAL DEATH RATES BY STATES, 1950

THERE were approximately 90,000 accidental deaths in 1950, a decrease of 1,000 from the 1949 total. The 10-year change from 1940, allowing for changes in classification methods, was a decrease of 3 per cent despite the sizable increase in population.

The 1950 accidental death rate was 59.5 per 100,000 population, with no adjustment for changes in the age distribution of the population since 1940. If such adjustment is made, the rate drops to 57.8. The change from 1949 for either rate is a 3 per cent decrease.

The 1950 rates are the lowest ever recorded. Direct comparison with earlier years cannot be made because of changes in classification methods, but allowing for those changes, the 1950 crude rate was 30 per cent less than the 1903-07 rate. If deaths from motor-vehicle accidents—which were rare in 1903-07—are omitted, the death rate for other accidents showed a decrease of more than one-half by 1950.

There were no disasters in either 1949 or 1950 which resulted in more than 100 deaths. In accidents resulting in 5 to 100 deaths, however, the 1950 death toll was nearly 1,500, or about 300 more than occurred in such accidents in 1949, according to tabulations of the Metropolitan Life Insurance Company.

Nonfatal injuries in 1950 are estimated at approximately 9,000,000. About 330,000 of the injuries resulted in some permanent impairment, ranging from the loss of part of a finger to total crip-

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A. D. BATTEY is a Senior Statistician, National Safety Council, and editor of *Accident Facts*. This summary of the accident experience of 1950 is based upon Accident Facts—1951 Edition, the Council's annual compilation of essential information about accidents. This booklet is now being distributed to members.

pling. The remaining injuries resulted in temporary disability extending beyond the day of the accident, but in many cases to only a few days.

Accidents vs. Disease. Detailed information on deaths from disease is not available for 1950, but it is reasonably certain that accidents held the same position as in 1948. In that year the crude death rate for accidents was approximately 67—the fourth highest rate for any cause. The leading cause was heart disease, with a death rate of 323. Cancer was second, with a rate of 135, and cerebral hemorrhage was third with 76.

Thirteen years earlier, in 1935, pneumonia and nephritis had death rates considerably higher than the accident rate, but by 1948 the pneumonia rate had dropped 57 per cent and the nephritis rate 35 per cent as a result of new medicines and improved medical techniques.

From age 1 to age 35 there were more deaths from accidents than any other cause.

The 1948 accident rate for males was much higher than that for females—93 compared to 42.

For males, only heart disease with a rate of 388 and cancer with a rate of 135 outranked accidents as a cause of death. Among females four causes had higher death rates than accidents: heart disease, 258; cancer, 135; cerebral hemorrhage, 78; and nephritis, 49.

DEATHS AND DEATH RATES OF WORKERS BY MAJOR INDUSTRIES, 1950

Industrial Group	Total Deaths	Deaths per 100,000 Workers	No. of Workers per Death
Mining, quarrying, oil and gas wells	1,000	110	900
Construction	2,300	93	1,050
Agriculture	4,300	57	1,750
Transportation	1,300	43	2,300
Public Utilities	300	27	3,700
Manufacturing	2,600	17	5,800
Service	2,200	14	7,000
Trade	1,500	12	8,400

For males alone accidents were the leading cause of death from age 1 to age 37.

Costs. Accident costs that can be estimated totaled approximately $7,300,000,000 in 1950. Wage loss, including the present, or discounted, value of anticipated future earnings for deaths and permanent total disabilities, was about $2,600,000,000; medical expense, $400,000,000; overhead cost of insurance, $1,100,000,000; property damage in motor-vehicle accidents, $1,250,000,000; property damage in fires, $649,000,000; indirect costs associated with occupational accidents, $1,300,000,000.

Age Distribution. In 1950, as in other years, the lowest accidental death record was for children 5 to 14 years old. The death total was 5,500, and the death rate per 100,000 population was approximately 22. The rate was the same as in 1949, but 50 per cent less than the average rate for the five years 1903 to 1907.

The largest accidental death total, and the highest rate, was recorded for persons 65 years old and older. Deaths numbered 24,500, and the rate was 199. This was 18 per cent less than the rate for 1949; and 17 per cent below the 1903-07 average rate, after allowing for classification changes.

In the age group 25 to 44 years the 1950 rate was 47, a 4 per cent increase from 1949, but a 46 per cent drop from 1903-07. For children under 5 years there were 49 deaths per 100,000 population, an improvement of 4 per cent from 1949 and 48 per cent from 1903-07. Persons 15 to 24 years old had a 1950 rate of 57—10 per cent above 1949 but 17 per cent

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TRENDS IN ACCIDENTAL DEATHS, 1949 TO 1950

TABLE I — BY AGE

	Total Deaths	Deaths per 100,000 Persons	% Change in Rate from 1949
All Ages	90,000	59.5	— 3%
0 to 4 years	8,000	49.0	— 4%
5 to 14 years	5,500	22.4	0
15 to 24 years	12,500	56.7	+10%
25 to 44 years	21,000	46.7	+ 4%
45 to 64 years	18,500	60.8	— 1%
65 years and over	24,500	198.8	—18%

TABLE II — BY TYPE

Type of Accident	Total Accidental Deaths	Death Rate per 1000,000 Population	% Change in Rate from 1949
Motor-vehicle	35,000	23.1	+ 9%
Falls	18,500	12.3	—14%
Burns	6,800	4.5	+ 2%
Drownings	6,100	4.0	—11%
Railroad	3,400	2.3	+ 5%
Firearms	2,350	1.6	0
Poison gases	1,900	1.3	+ 8%
Poisons except gas	1,500	1.0	— 9%

BETWEEN

Eyes and Danger

By STANLEY C. HERBINE

Eye conservation needs the right equipment, also energetic selling for both men and management

EYE INJURIES in American industry result in an estimated loss of more than 50,000,000 manhours annually. And in 1941 eye injuries cost $20,000,000 a year in direct compensation costs, with indirect costs amounting to perhaps four times that amount. Since then industrial eye accident costs have gone up—as much as 78.5 per cent.

No one questions the need for industrial eye protection programs, but sometimes it is difficult to focus the need in a plant and then put into practice a program designed to prevent as many injuries as possible.

The following suggestions sum up workable methods in use. They are not intended to be a ready-made plan for every plant but rather a report of tested methods which a safety director may find useful in gauging his own operations. They offer a check list for determining weak spots in an existing program, and a guide for establishing a program in those plants which have none.

Steps in establishing a program include:

1. Determining the need in your plant through a check of safety practices and a survey of jobs and protection needed.
2. Sell the idea to management.
3. Make the program work. That means putting responsibility where it belongs and developing proper attitudes among workers.

Determining the Need. The National Society for the Prevention of Blindness has prepared a Manual and Appraisal Form on Conservation and Utilization of Eyesight in Industry.[4] It will help those plants to make a self-appraisal of the need for an eye safety program. This form will quickly show any deficiencies in the program.

As a preliminary program, the manual suggests checking the eyesight of all workers to determine visual capacity, and to place each worker in a job commensurate with his visual skills.

Check Plant Safety Practices. A check list would include:

1. What eye injuries occurred in your plant in the last year?
2. How much did these injuries cost?
3. Have hazards been guarded at the source as effectively as possible?
4. Is every worker who is exposed to injury from large or small flying particles provided with impact-resisting goggles of the proper type?
5. If these hazards include glare (as in welding or cutting), are the men provided with tinted lenses of the proper shade for that type of work?
6. If corrosive or poisonous fumes from chemicals are present in any operation, are chemical cartridge respirators and gas masks provided?
7. Is the illumination in your plant up to the standards recommended for general lighting, and for illumination at the point of work?
8. Review the reports of eye accidents in your plant. Can you find one case where the accident could have occurred if eye protection had been worn? In other words, have you any industrial eye hazards for which existing eye protection on the market is not adequate?

Check the Jobs and Protection Needed. Experience shows that some 90 per cent of all eye accidents in industry might have been prevented if proper eye protection had been provided. In determining the need for the program, it is often desirable to chart the jobs which require protection and the correct type of protection for the job. Unprotected hazards are revealed in a survey of this kind.

Every job in the plant should be studied. By finding actual cause of eye injury on some operations and discovering potential eye hazards in other types of work, the safety director can determine the types of protection that should be provided.

It's quite a job to choose that protection specifically. Some work-

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STANLEY C. HERBINE *is with Willson Products, Inc., Reading, Pa. (The illustration above was specially posed; it is not a portrait of the author.)*

OCCUPATIONS REQUIRING EYE PROTECTION

For Protection from:	In Jobs Such as These:	Select This Eye Protection:
Relatively large flying objects, such as rivets, nails, metal chips, fragments from mushroomed tools.	Chipping, finishing of iron and steel castings and forgings, lathe work, or jobs using tools subjected to repeated blows, such as chisels, swages, flatters, fullers, and all breaking-down tools which are not carefully watched and dressed and groomed.	Chief requirements are strength of lens, lens container and frame, and sideshields —and comfort to the wearer. Frames should be light in weight, smooth, and not rust or corrode under sterilization. Types and styles used: Safety spectacles with hardened lenses and side shields. Heavy duty cover-all cup goggles designed especially for workers who must wear prescription lenses. Heavy duty cup goggles with hardened lenses.
Dust and small flying particles.	Scaling and grinding of metals.	Requirements are that goggles enclose eye completely, but need not be especially strong, since impact is not so great. Types and styles used: Cover type of plastic one-piece lens. Safety spectacles with hardened lenses and side shields. Composition cup cover-all goggles, with indirect port ventilation.
Metal sparks and spatter.	Electric spot and butt welding where there is no exposure to radiant energy.	Full-face plastic shield. Cover type of plastic one-piece lens.
Splashing metal.	Casting of hot metal, and dipping in hot metal baths; babbitting; pouring of lead joints for cast iron pipes. In terms of frequency and severity this is one of the most serious industrial eye hazards.	Requirements are that lens withstand moderate blow of molten metal and lens container hold cracked lens in position. Plastic visor. Cover type plastic one-piece lens. Composition cup goggles with hardened lenses. Wire screen visor with wide flare. Spectacles with sideshields and hardened lenses.
Gases, fumes, and liquids entering the eyes.	Handling of acids and caustics and other corrosive chemicals, dipping in galvanizing tanks and pickling tanks.	Cover goggles with hardened lenses for prescription lens wearers. Wide flare plastic visor shield. Composition cup goggles with hardened lenses. Rubber mask goggles with indirect screened ventilation ports and wide vision hardened lenses.
Reflected light and glare.	Exposure to incidental glare from furnaces, working near or adjacent to welding operations, etc.	Spectacles with light filter lenses with or without sideshields. Composition cup goggles with light filter lenses, retaining ring and side screen.
Injurious radiant energy when a moderate reduction of intensity of the visible radiant energy is desired.	Oxyacetylene welding and cutting; and testing of lamps involving exposure to excessive brightness.	Scarfing shield (V-scarfing). Cup goggles with welding glass lenses and clear cover glass to save the welding lenses from pitting, and indirect screened ventilating ports to prevent fogging of the lenses, and exclude injurious flashes, hot metal, and sparks. Cover type welding goggles with special welding lenses, and cover glass clear lenses, and indirect screened ventilating ports. Chip-weld goggles. The welding glass lenses flip up to leave eyes protected by clear hardened glass lenses ready for chipping after welding.
Injurious radiant energy when a large reduction of the visible radiant energy is desired.	Electric arc welding and cutting, irradiation with ultraviolet light, hydrogen welding, tending electric arc furnaces, open hearth, Bessemer, crucible, and blast furnace steel making.	Scarfing shield, with welding filter glass and clear cover glass. One-piece shell welding helmet with flip-front welding section which can be raised for quick inspection of weld, and a stationary section fitted with clear, laminated glass for observation of the weld. Fabricated shell welding helmet with stationary welding glass section. Melters' goggles with blue filter lenses.

Famous Cartoonist JOINS SAFETY EFFORT

OUT OUR WAY by J. R. Williams

MOOM— I CAN'T BEAR TO SEE SQUASHED OR CUT FINGERS!
I'D THINK A PERSON'D HAVE SENSE ENOUGH TO GET FIRST AID INSTEAD OF WRAPPING UP DIRT AND GREASE IN A FILTHY BANDAGE!
THEY NEVER WASH THEM— THEY WRAP UP DIRT, OIL AND GREASE! THEY SHOULD MAKE YOU GO TO THE COMPANY DOCTOR!
WHY? THERE'S NONE OF THEM OFF IS THERE?
BORN THIRTY YEARS TOO SOON
J.R.WILLIAMS

THROUGH COURTESY OF NEA SERVICE

TAKE the experiences of a college football player, railroad fireman, cowboy, cavalryman, prizefighter and machinist. Mix in a warm, homespun philosophy and the skill of an artist. Then temper for nearly thirty years in the heat of public acclaim. What have you?

You have the *Out Our Way* cartoon series by J. R. Williams, the latest famous cartoonist to contribute his noted sketches to the cause of safety through the poster program of the National Safety Council. Through the courtesy of NEA Service, world-famed newspaper syndicate, the best of Williams' cartoons will be added to the safety poster selection in coming months. Samples are shown on this and the opposite page.

Initial release in the series, Poster No. 9303-A, in 8½ by 11½ inch size, shown on this page, will be available in August. It and those to follow will be illustrated in the poster section of NATIONAL SAFETY NEWS each month. They will be available in the regular poster service, under automatic or optional selection, or may be purchased separately.

The first selection, devoted to the First Aid theme, illustrates how the cartoons lend themselves directly to application in the field of safety. It was this high degree of adaptability, as well as the fame of the cartoon series, that prompted the Poster Committee to seek the cooperation of NEA Service and Mr. Williams.

The steadily growing millions of readers who follow the *Out Our Way* cartoons in more than 1,000 newspapers (probably the highest total claimed by any cartoonist) might find it hard to explain just what is so appealing about these drawings.

Perhaps the answer lies in the artist's unusual ability to find in his own exciting and varied experience the little homey, humorous situations that can be presented with a sympathetic warmth that causes the reader to identify them with his own life. In fact, Jim Williams is often referred to as the Will Rogers of the comic field. Williams is able to present in his sketches the same kind of friendly humor found in the speech and writings of Rogers.

To find how Jim Williams got that way, you have only to look

HEY-HEY! WHUT D'YA THINK YOU'RE DOIN', HERE? YOU MIGHTA PUT MY EYES OUT!
THERE'S ANOTHER REASON WHY THEY CAN'T MAKE NO UTOPIA OF THIS EARTH— A LOAFER, MIND YOU- A GUY WHO HAS NO BUSINESS WITH HIS NOSE IN THERE-BLAMIN' SOMEONE ELSE, CUZ HE GOT IT BURNT
IF UTOPIA MEANS A PLACE WHERE EVERYBODY IS HAPPY, THEN THER CAN'T BE NO SUCH PLACE, BECAUSE SOME PEOPLE ARE ONLY HAPPY WHEN THEY'RE MAKIN' OTHER PEOPLE UNHAPPY.
J.R.WILLIAMS
THE NOSE WARMER

J. R. Williams at his drawing board and (left) some of his cartoons.

OOWH! NOPE, NOPE, IT AIN'T BROKE, THANK HEAVENS! THE ONLY THING DIFFRUNT TH' BOYS IN TH' FRONT LINE GOT TO PUT UP WITH IS THE ENTANGLEMENTS ARE BARB WIRE, NOT JIST LAMP AN' RADIO CORDS!
DO YOU THINK HE COULD GO THRU SUCH A HORRIBLE ORDEAL WITHOUT PULLING THAT PUNY LAMP DOWN? OH, HOW I WISH I RAN THIS HOME--THINGS WOULD BE A LOT DIFFERENT!
J.R.WILLIAMS
WHY MOTHERS GET GRAY

into his amazing work record.

His full name is James Robert Williams. He was born in Nova Scotia of parents who had come over from England. While still a baby, he was moved with his family to Detroit, and at 14 was playing football at Mt. Union College. At 15, he was firing a locomotive on the Pennsylvania Railroad.

Before long he headed west and served a stretch in Kansas as a mule skinner, later tying up with a cattle outfit, where he cooked for cowhands and punched cattle. One day he saw some cavalrymen, liked their looks, and enlisted, serving three years.

He was by that time as hard as hickory, and as tough. He weighed 168 pounds, was light on his feet and was quite a scrapper. He became the light heavyweight champion of his outfit and when enlistment was up, he turned professional. He recalls that part of a fight purse paid for the first fur coat he ever bought his wife, but it was she who made him quit the ring "when a feller busted my nose."

Williams never forgot that he wanted to be an artist someday. He did a lot of sketching in cowboys' bunkhouses and Army barracks. He was still at it when he went to work in a machine shop in Alliance, Ohio. It was while there that he sent some sketches to NEA Service. He was hired promptly and the long line of *Out Our Way* cartoons began appearing in newspapers in March, 1922.

Jim Williams relives his own life in his feature—to a greater degree, perhaps, than any other artist. His daily procession of *Out Our Ways* contains a cowboy series; a "Worry Wart" series (about kids); a "Why Mothers Get Gray" series; a machine shop series (featuring his old foreman, "The Bull of the Woods"); an occasional cartoon of the old border cavalry days, and a "Born Thirty Years Too Soon" series, a nostalgic recollection of life as it was generations ago.

Watch for *Out Our Way* cartoon poster selections in coming issues of NATIONAL SAFETY NEWS.

ELECTROPLATING

Published by National Safety Council
425 North Michigan Avenue, Chicago 11

1. This data sheet discusses types of plating operations, their hazards, and methods of preventing accidents and harmful exposures. Metal cleaning and degreasing operations, which are a necessary prelude to electroplating, are considered only from the viewpoint of ventilation.

This Data Sheet is one of a series published by National Safety Council. It is a compilation of experience from many sources. It should not be assumed that it includes every acceptable procedure in its field. It must not be confused with American Standard Safety codes; federal laws; insurance requirements; state laws; rules and regulations, and municipal ordinances. Reprints of Data Sheets are available from the National Safety Council.

Types of Plating Solutions

2. A brief review of the usual types of solutions which may be found in different operations follows.

3. *Acid copper baths*, used more in electrotyping and electroforming than in plating, consist principally of copper sulfate and sulfuric acid, usually with small amounts of organic "addition agents." Copper anodes are used with high electrode efficiencies, and no spray is evolved. Where excessive air agitation or insoluble lead anodes are used the resulting spray necessitates good ventilation.

4. *Acid zinc baths* consist principally of zinc sulfate with ammonium or aluminum chloride and organic agents. They are generally operated wtih zinc anodes and with a low acidity ($_{p}$H 3), resulting in high efficiencies. In the Taiton process a strongly acid zinc sulfate bath is used with insoluble anodes. In this process ventilation is usually required for comfort, because the zinc salts and sulfuric acid mist are irritating and possibly harmful.

5. *Nickel baths:* Nickel plating is done in slightly acid baths, e.g., from $_{p}$H 2 to 5, and electrode efficiencies are relatively high. Acid mist resulting from high current densities may require ventilative control.

6. *Acid lead baths* consist of fluoborate, fluosilicate, perchlorate or sulfamate of lead, with a fairly high concentration of the corresponding acid. The electrode efficiencies are high and little spray is evolved.

7. *Chromium plating baths contain chromic acid*, a strong oxidizing agent. Considerable strongly irritating mist is evolved.

8. *Alkaline tin baths:* The alkaline tin solution is the principal strongly alkaline bath (other than cyanide) used in plating. It is composed principally of sodium stannate and contains enough free sodium hydroxide to prevent hy-

TABLE I—AIR FLOW RATES FOR TANK VENTILATION

Air flow rates CFM/sq. ft.	Process or Application
100	Low temperature solutions, little or no gas bubbling
150	Preferred for chromium electroplating Cyanide plating solutions giving off much gas or mist Muriatic acid pickling Aluminum anodizing
200	Electrolytic cleaning with sodium hydroxide Hot caustic or alkali cleaning or degreasing
250	Stripping with concentrated nitric acid Stripping with concentrated nitric-sulfuric acids Hot nitric—hydrofluoric acid pickling Boiling caustic solutions
50-350	Range of ventilation rates suggested in the American Standard Z9.1-1951 for lateral exhaust of open surface tanks (in press)

drolysis. Soluble tin anodes are used under conditions that prevent much formation of sodium stannite. At times addition of oxidizing agents such as hydrogen peroxide may be required to oxidize stannite to stannate.

9. The oxidization is sometimes done in a separate tank, operated with insoluble steel anodes. Oxygen is evolved and carries out an alkaline spray. In the normal operation of the stannate baths the electrode efficiencies are fairly high and little spray is evolved.

10. *Acid tin baths* contain tin sulfate, sulfuric acid, and cresol sulfonic acid. The high acid concentrations used, accompanied by high agitation rates, produce spray mist of these irritating acids. Ventilation is required.

11. *Cyanide baths:* All the cyanide baths, including those for copper, zinc, brass, bronze, cadmium, silver, and gold plating, contain a soluble double cyanide of the metal with either sodium or potassium, some free sodium or potassium cyanide, and in some cases (e.g., zinc baths) free sodium hydroxide. The copper baths are frequently operated at high temperatures up to 200 °F, but most of the others are used at room temperatures.

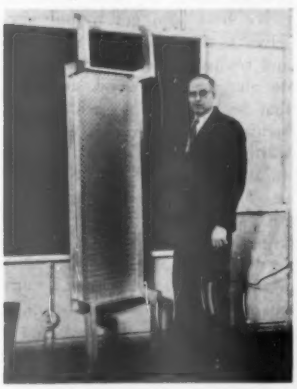

Figure 1. A magnesium board platform for use in changing anodes or doing other repair work over tanks. (Courtesy Guide Lamp Div., General Motors Corp.)

Figure 2. Routine sampling of the general atmosphere in the vicinity of plating operations to assure that ventilation control is effective. (Courtesy Brown-Lipe-Chapin Division, General Motors Corp.)

Health Hazards

12. Systemic occupational illness among plating operators is infrequent in spite of the potentialities for exposure to a large number of harmful materials. Injury to the skin and mucous membranes from chemicals is more common.

13. Severe and diffuse burns caused by extensive contact with acids or alkalies are rarely encountered and are ordinarily accidental. The acids, more particularly chromic, nitric, hydrofluoric, and sulfuric, are highly destructive to tissue.

14. Similarly, possibilities for splash burns involving the eyes are present wherever acids or caustics are handled.

15. Ulcerations of the skin and mucous membranes, including perforation of the nasal septum, are the most common type of injury. They may be caused by such compounds as chromic acid, certain fluorine compounds, acids, and chromium compounds in which the chromium has a valence of three do not give rise to serious industrial hazards.

16. "Chrome holes" resulting from the chemical action of chromic acid or its salts are relatively common. Chrome holes are often deep, pentrating, indolent ulcers with smooth firm borders occurring at the site of an abrasion or break in the outer skin. The characteristics of the lesions are thought to result from the formation of hard eschars which permit only gradual disintegration of tissue. Prevention is effected by correct ventilation, protective clothing, and supervision.

17. Similar lesions result from exposures to several fluorine compounds. Fluoborate, for instance, may cause raised pimple-like lesions which subsequently develop craters in their apices. Acids tend to form more limited ulcerations than do alkalies, because, in general, the eschars formed by acids

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World War II saw developments in mobile fire-fighting units for protecting scattered operations. This truck is used for aircraft crash fires. (Courtesy Mack Trucks, Inc.)

Mobilizing Against Fire

By HORATIO BOND

Possible enemy tactics are a matter of speculation but these measures aid in planning a sound defense

IT WOULD BE very helpful if we knew when and where and by what weapons our industrial plants might be attacked in a future war. If anyone knew these things it would simplify the problem of getting an intelligent solution.

One probability is that an attack will come by airplane and we know something about what was done with airplane attacks on cities and industrial plants in World War II. Guided missiles are an unknown quantity. All the published information indicates that they are still pretty crude weapons.

It is probably fair to assume also that attacks with high explosives and incendiaries are not likely on targets in the territorial United States until an enemy has bases a lot closer than any we have heard of so far. This leaves us the A-bomb as the weapon likely to be used by an enemy.

A-Bomb Attack

The Hiroshima A-bomb is at least a known weapon and I shall discuss defense here in the light of that particular weapon. We can only hope than the conclusions at which we may arrive by considering that one weapon may in some measure fit types of situations brought about by other weapons.

We have also got to put ourselves in the position of an enemy and try to figure out what would do him the most good, assuming that he could hit us with an A-bomb attack. It would hardly be worth attempting unless by such an attack he could seriously harm us. This is perhaps the most hopeful part of the whole picture because war is much more likely to be delayed by an enemy's inability to hit us hard enough than by any other consideration which might enter the enemy's mind.

The kind of attack that makes the most sense from the enemy's point of view is a one-shot surprise attack in an attempt to knock out our principal centers of production. Let's assume, without further

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HORATIO BOND *is Chief Engineer, National Fire Protection Association. This article has been adapted from an address at the 55th annual meeting of the NFPA, Detroit, Mich., May 8, 1951.*

argument, that an A-bomb attack is possible and likely, and see what kind of situations we have with which to deal.

The dropping of A-bombs is probably no more accurate a procedure than dropping conventional bombs. Putting a bomb of any type on a target is a tricky one in spite of all the publicity the air force boys have given to their ability to pinpoint a target. It should be kept in mind that the distribution of bombs dropped always follows a random pattern. There may be some one point at which the enemy will be aiming but the landing of the bombs on any given target will have the characteristic of scattered points of actual contact.

If you consider your industrial plant a target, therefore, it makes no sense to take the target as a center and draw a circle of expected damage from the center. The center, of course, is one of the possible places where a bomb might land but it is necessary to consider the effect of the bomb landing at almost any other point or at a number of points anywhere within a number of miles of the plant.

From the Hiroshima A-bomb, certain deductions can be drawn as to the physical damage to be expected. Directly under the center over which the bomb bursts, there is an area of substantially complete destruction. This destruction becomes partial a mile or so from the center and becomes less and less out to the area where the only damage is broken glass.

In calculating chances of bomb damage on a purely mathematical basis, the plant is much more likely to be in the area where damage will be partial than it is in the areas of complete destruction. This fact will have some important effects on your decisions as to what measures your plant might undertake in the way of defense.

Plant Layout and Location

If your plant is located outside of a metropolitan area the chances of it being a specific target to A-bomb attack are pretty remote. No matter where you are located, chances of a bomb dropped a long way off its target are always a threat but this is highly improbable and does not justify important deviations from regular industrial practices.

In most of the metropolitan areas, particularly in the northern and eastern parts of the United States, any industrial plant is likely to be subject to all of the effects if an A-bomb attack is made on that particular metropolitan area.

If your plant is located in a metropolitan area, it would be only prudent when considering additions to the plant to consider them in such a way as to reduce the possibility of fire spread from one building to another. In other words, if you are going to build a new building, build it, if possible, a few hundred feet from existing buildings. Also, if you are now located in a metropolitan area and the question of relocating a plant comes up, it is proper to attempt then and there to choose a new plant location which is definitely outside of a target area.

There is nothing radical or alarming about these recommendations. They are simply ones which prudence and common sense would dictate. They represent official recommendations which you can find in the brochure issued in 1948 by the National Security Resources Board entitled, *National Security Factors in Industrial Location.*

Damage to Buildings

If you want to try to figure out what might happen to the present buildings in your plant, you will find considerable information in the accounts of the fires of World War II. The National Fire Protection Association has a book entitled, *Fire and the Air War,* in which the lessons of the war fires of World War II are summarized and which also contains the official account of the atomic bombs on Hiroshima and Nagasaki. This book is perhaps more conveniently available to most people than the numerous official reports which catalog the war damage.

There are also two publications available from the Superintendent of Documents, one entitled, *The Effects of Atomic Weapons,* which can be obtained for $1.25, and another, *Fire Effects of Bombing Attacks,* which can be obtained for 15 cents. To obtain these, write to the U. S. Superintendent of Documents, Washington, D. C.

According to these various publications, wood buildings are destroyed both by the blast effects and fire effects of an A-bomb. If buildings have brick walls, but are otherwise of wood construction, they, too, are subject to practically complete destruction.

The conventional industrial building consists of an unprotected

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For plant protection in peace or war, first-aid extinguishers and trained employees are an important element of defense. (Courtesy The Budd Co.)

Energy RESTORED

Plant facilities for tasty, nourishing meals and in-between snacks help to make the job easier and the employee happier

THE EASIEST and least expensive way of making any job better is by making it possible for everyone on the payroll to obtain good food, quickly and at a fair price.

Most of the problems encountered in trying to improve existing industrial conditions and practices are involved, but one simple way to increase job appeal is clearly through the worker's stomach.

According to C.B. Doron, president of Factory Stores, a firm which serves hot meals to an average of more than 250,000 workers daily, scientific planning is just as important to the efficient operation of any in-plant food service unit as it is in any manufacturing operation. On it depends the capacity to prepare and serve meals efficiently, to handle employee traffic with a minimum of waiting time, and to provide attractive surroundings which can be maintained at minimum expense.

The same scientific attention must be given the problems of selection of equipment for efficient operation of food service units; controlled research by qualified home economists directed toward product quality; organization of management personnel under an over-all board of management; development of wise buying policies and procedures; and careful training of all personnel.

Some of the questions that one responsible for in-plant food service might ask in evaluating existing services and laying out a program that will lead to improved job appeal are those suggested by Factory Stores.

1. What is our capital investment per employee in food service facilities?

2. How does this compare with other plants in our industry (in dollars and in value received)?

3. What does the operation of our food service facilities cost per

Between 2400 and 2700 workers a day are served at each of Factory Stores' new canteens in Lorain Plant of National Tube Company. Porcelain enamel panels in two tones of green enclose service area. Stainless steel aids its trim appearance.

Daily specials served in the carry-out canteen at Anheuser-Busch are packaged in specially designed paper containers.

View from manager's desk in National Tube Company cafeteria. Hot and cold dishes are prepared in kitchen at left.

employee? Could this be reduced by:

a. Improved layout of our food service facilities?

b. Better equipment?

c. More advantageous purchasing policies?

d. More scientific menu planning?

e. Upgrading personnel?

f. Use of single-service paper containers and utensils?

4. What is the cost in lost man-hours attributable to our food service operations? Could this be reduced without any real loss to the employees by:

a. Better distribution of food service facilities?

b. More efficient service?

c. Basic change in method of service?

5. How do prices compare with:

a. Other food service operations in our locality?

b. Restaurant prices ?

6. How does the nutritional value of "daily specials" compare with established dietary standards?

7. How does our average employee's meal satisfy his needs?

8. Could employees' health be improved by developing menus which combine nutritional value with an appeal to personal preferences?

The answers will provide a sound basis for judging what you have and for future planning. They have already aided many industrial firms in establishing the basis for solution of their own employee feeding problems.

Above: In steel mills, carbonated beverages help to maintain energy and morale.

Lower left: Specially designed food service truck to handle distribution of hot and chilled foods to scattered localities.

Lower right: Interior of the mobile canteen, showing ice cream freezer, electric hot table, sandwich basket and milk cooler.

CAUSE AND CURE

These examples are from reports of actual accidents. They list the causes and the steps taken to prevent recurrence

Run on the Bank

Instead of using the regular path, employee took short cut by going down a bank; he slipped on wet ground and fell, spraining his ankle.

Correction: Employees were instructed to use the walkways in going from one area to another.

Hose Strikes

While tightening connections on a water hose, the hose parted at the fitting, striking the workman on the forehead over the right eye.

Correction: The condition of the hose and couplings should be checked before making the attachment.

Getting Off Trucks

A pipe fitter who was riding on a truck waited for it to stop and then jumped from the side, fell, and twisted his knee.

Correction: The pipe fitter should have ridden in the cab with the driver, stepped onto the running board and then to the ground, and used the handhold.

Plumb the Load

An employee was guiding a load suspended from a crane into position by hand when it swung and pinned him against a nearby structure.

Correction: When a load must be guided into exact position by hand, it should first be landed by using a tag line or similar means and then raised a few inches and any swing eliminated; then pushed into position.

Lash Portable Ladders

A ladder equipped with safety feet and of the proper length was used to reach the top of a carload of steel pipe. In getting from the pipe onto the ladder, a man lost his footing, grabbed the rail of the ladder and pulled it sideways as he fell.

Correction: The ladder could have been lashed at the top, providing a firm support for stepping onto it from uncertain footing.

Mistaken Identity

An oiler kept a supply of carbon tetrachloride in a whiskey bottle for cleaning his shoes. Another worker with a taste for liquor took a drink and died.

Correction: Restrictions were placed on giving harmful liquids and other harmful substances to employees not authorized to use them and employees were informed about the danger of keeping such fluids in whiskey and other bottles, particularly without removing the original label and replacing it with one describing the contents.

The SAFETY VALVE

The Mail Gets Through

DOMESTIC PETS are not the only fauna that menace postmen on their appointed rounds. According to a Reuters dispatch from Tanganyika, an African postman was killed by a crocodile while trying to swim a river swollen by floods. His mailbag was fished out of the swirling water by other mailmen and the mail was delivered.

All over the world mail carriers are living up to the motto of the U. S. Post Office Department:

"Neither snow nor rain, nor heat, nor gloom of night stays these couriers from the swift completion of their appointed rounds."

That tribute to a faithful group of men is of very ancient origin. It is attributed to Herodotus.

* * *

And William Feather parodies that famous quote thus: Not snow, nor rain, nor heat, nor gloom of night stays the guests from a party at which merriment is promised in generous measure, free.

How About "Conditions"?

WE HAVE BEEN told so often that safety is 85 per cent human problems that we may overlook the vital 15 per cent that involves the place where men work and the tools they work with.

In *Automotive-Machine Shop Safety* for May, Mike Biancardi, manager of Allis-Chalmers' Health and Safety Department in Milwaukee, says that you can't separate the two elements. His arguments make sense:

1. Unsafe conditions are reflected in lowered morale and consequently poor safety attitude among employees.

2. Unsafe conditions provide fertile ground for the development of unsafe work habits.

3. Injuries resulting from unsafe conditions are potentially severe.

How much respect will employees have for exhortations that aren't backed by continuous attention to physical conditions? So, while gunning for unsafe practices. Let's not overlook conditions.

And let's not interpret "conditions" as applying only to those quick and violent ones that kill and mutilate. Dirt, gloom and noise are among the conditions that breed "carelessness."

Helpful People

FROM TIME TO TIME I have received helpful, friendly service from strangers who never expected to see me again, and had no hope of largess. And this attitude is not confined to any section of the country.

Down in Kennesaw, Georgia, we wanted to get in touch with some friends in the neighborhood. At the suggestion of the motor court owner we called the proprietor of a garage who knew everybody in the county. Our friends lived out in the country and had no phone. So the garage man drove out to their house, made sure they were home, and reported back on how to get there.

Several hundred miles from there, we landed in Woodstock, Ontario, one night. The train was an hour late; it was raining and no cab was in sight. The night agent at the Canadian National station called up the car rental agency and found that a car had been reserved as requested. Then he called a cab for us. Friendly service made a dark, rainy night less dismal.

The third instance was just a few blocks from our office. Going over to a warehouse to pick up a purchase, I found that, contrary to the description in the catalog, the item was too bulky to be carried home in a bus. So I had to have it packed and sent out by express. That meant chasing around from the "Will Call" to the shipping room and finding someone who knew what to do in such a situation. The order wasn't large and handling it was more or less of an accommodation. It upset the routine of the department but everybody involved went out of their way to be helpful.

In This Issue . . .

FOR AN OUTSTANDING SAFETY RECORD, Berwick plant of American Car and Foundry Company was recently honored by the Commonwealth of Pennsylvania. This story of the management-safety department partnership explains much of the effectiveness of the program. (Page 18)

* * *

When the blueprints for a plant are still in the architect's office, there are many opportunities for built-in safety measures — particularly for safe and efficient material handling. (Page 22)

* * *

In planning for industry's protection against possible enemy attack, money and effort should be concentrated on the most probable hazards. The things which offer the greatest security are those which all well-managed plants are now doing. But in war neglect of important details can be more costly than in normal times. (Page 34)

* * *

Our fictitious safety engineer's frankness in baring his soul in the *Diary* and confessing his failures may have led some readers to underestimate his ability. Last month he came out second best in a battle of ideas with the brash young editor of the employee publication. But this month he battles successfully with architects and engineers and gets important safety features included in construction plans. (Page 40)

Carman Fish

Runaround

(Fiction)

By BILL ANDREWS

July 1, 1951

The gentleman from the architectural firm wanted my opinion on the type of sprinkler heads for our new assembly building. He was, he assured me, quite prepared to defer to my judgment in the matter, being sure that I was singularly well-informed in this subject.

So I told him what I wanted in the way of sprinkler heads. He took very neat and careful notes, thanked me, and rose to go.

I said, "Just a minute. I'm also interested in a few other matters in this job. I want to see the general floor layout, details on exits, something on the lighting."

He looked blank. "I was told to consult you on sprinklers," he said. "You are the fire protection man, aren't you?"

"I'm the safety engineer," I said.

"That's the same thing, isn't it?" he asked.

I was tempted to deliver me of an oration. Instead I asked in something less than an infuriated roar, "Do you have anything to do with general plans, or are you just concerned with plumbing?"

He replied that he was the architect's mechanical engineer, concerned with many problems of the plant, but definitely not with general layout and design.

So I decided not to waste a really first class explosion on him. I shooed him on about his plumbing business.

I headed straight for my boss, Larson, our vice-president for manufacturing. I laid my beef right out on the table, telling him I didn't think I was doing a good safety job for him if my participation in planning a new building was limited to prescribing sprinkler heads.

He asked me what I thought I ought to be consulted on. I told him:

1. General plan of work areas and flow-of-work relationships.
2. Aisleways, stairways, exits and entrances.
3. Lighting and ventilation.

—*To page 78*

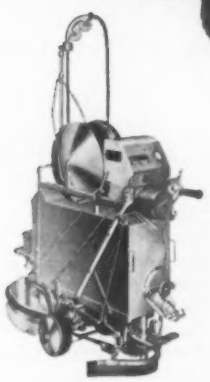
NEW SCRUBBER-VAC

Cuts Cleaning Time 2/3

FOR SMALL-AREA FACTORIES

- Specially designed for buildings with 2,000 to 15,000 sq. ft. of floor space
- Applies the cleanser, scrubs, rinses, and picks up in ONE operation
- Also handles the dry work — steel-wooling, polishing, et cetera
- Can be leased or purchased (leasing budgets cleaning expense)

Now the labor-saving advantages of *combination-machine-scrubbing* are available to small as well as larger factories. The *new 418P Finnell Scrubber-Vac*, for small-area buildings with 2,000 to 15,000 sq. ft. of floor space, cleans floors in *approximately one-third the time* required with a conventional 15 or 18-inch scrubber-polisher using separate equipment for picking up. A *Finnell Scrubber-Vac* speeds cleaning by handling four operations in one! It applies the cleanser, scrubs, rinses if required, and picks up (damp-dries the floor) — all in a single operation.



Of narrow design, the *new 418P Scrubber-Vac* also meets the need in larger factories for a combination machine that can be used in congested areas and narrow aisles. And all the refinements of *Finnell's* larger combination machines are embodied in this smaller unit (18-inch brush ring). Has new type of water valve that *assures* uniform flow of water . . . powerful vacuum for efficient pickup (performs *quietly*) . . . a *Finnell-developed* trouble-free clutch . . . self-winding cable reel . . . improved waterproof wiring and minimum electrical connections, simplifying the cleaning of the machine . . . G. E. Motors and Timken Bearings. The machine is self-propelled — operator merely *guides* it. Supplied with or without powder dispenser. Incidentally, it's good to know that when you choose *Finnell Equipment*, a *Finnell* man is readily available to help train your maintenance operators in its proper use.

SEE IT IN ACTION ON YOUR OWN FLOORS!

Find out what *you* would save with a *Finnell Scrubber-Vac*. *Finnell* makes several models and sizes. For demonstration, consultation, or literature, phone or write nearest *Finnell Branch* or Finnell System, Inc., 2207 East Street, Elkhart, Indiana. Branch Offices in all principal cities of the United States and Canada.

FINNELL SYSTEM, INC.

Pioneers and Specialists in

FLOOR-MAINTENANCE EQUIPMENT AND SUPPLIES

BRANCHES IN ALL PRINCIPAL CITIES

Safety Car on Tour of Japanese Railways

SAFETY CAR used by the Transportation Railway Military Service is on the Japanese National Railways to carry safety instruction to military and civilian personnel. BELOW: A Japanese civilian addresses a meeting in the car. Entertainment is included in the program; the young lady at the right is the soloist.

More than 600 occupation personnel and employees of the Japanese National Railways have attended the joint Army-Japanese sponsored safety classes being conducted in "The Safety Car" on its initial tour of Japan.

The Safety Car began its Japan tour at Sasebo, Kyushu, Japan, on May 20 and since that time has held six classes at principal railway stations in the Southwestern Command. Wednesday, May 23, the seventh class was held in Osaka and was attended by a mixed group of more than 80 Japanese and military personnel.

The 90-minute classes are conducted by Maj. Charles R. Fernandez, 8010th Transportation Military Railway Service; Cpl. Clayton Dees, TMRS; Rentario Hashimoto, Tadao Sakuraoka, Kiichi Onoda and Tokuji Kitamura, all of the Japanese National Railway.

The class opens with a Japanese girl singing the anthem of American railroaders, "I've Been Working on the Railroad," accompanied by a three-piece band, provided by the JNR. A safety talk and demonstration by TMRS personnel and JNR employees on the proper utilization of fire extinguishers and other methods of eliminating fire hazards on Japan's maze of railways follows. The showing of an Army training film depicting the comparison between civilian and military operations, translated by interpreters for the benefit of Japanese attending, and a general discussion period concludes the TMRS-JNR safety class.

Every 90 days the car will visit principal railway stations in Japan stressing a different phase of railroad safety.

According to Col. Harry Owens, Commanding Officer, Japan Logistical Command's TMRS, and Yukio Kagayama, president of the Japanese National Railways, "The Safety Car" is a result of a pooling of ideas and efforts of the TMRS and JNR to promote safety in the operation and maintenance of railroads in Japan for the mutual welfare of occupation personnel and employees of the JNR.

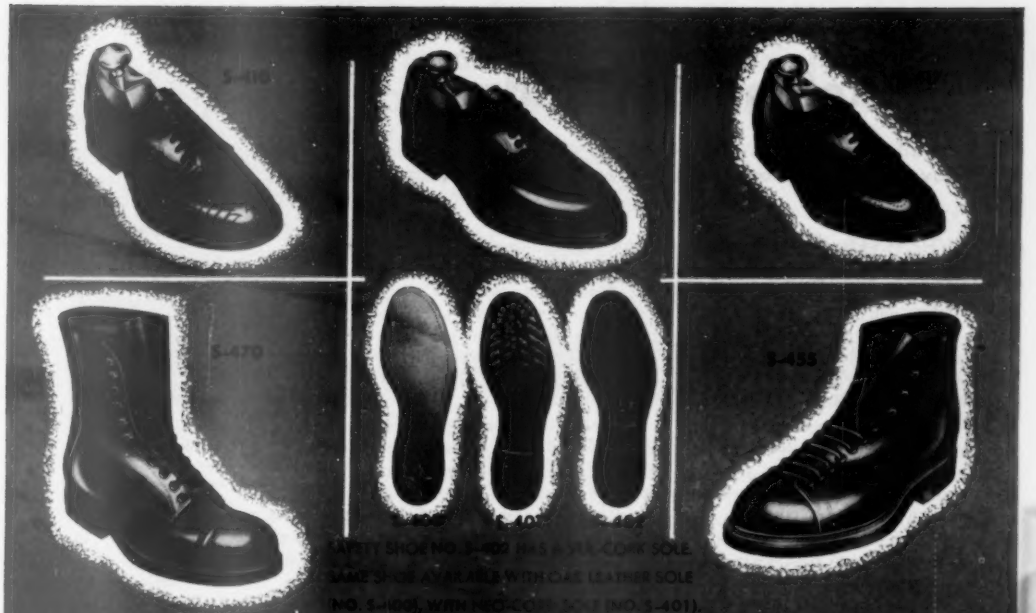
Award Fire Protection Engineering Scholarships

Sixteen four-year scholarships in fire protection engineering at Illinois Institute of Technology were awarded recently by the Stock Fire Insurance companies through the Western Actuarial Bureau.

Winners were selected on the basis of competitive examinations, high school record, personality, and character of the applicant.

Each award provides payment of tuition and other fees for a regular four-year course.

During the summer vacations, the actuarial bureau assigns each scholarship student to a position with one of its midwest inspection bureaus.



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Industrial

PLANT MEN EVERYWHERE ARE TALKING ABOUT THREAD OF **DACRON**, POLYESTER FIBER—THAT NEW AND REVOLUTIONARY **DU PONT** SYNTHETIC MARVEL USED IN THE STITCHING OF

RICO *SAFETY SHOES!*

Look at these 6 BIG *Features*

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- Outstanding strength! Seams can now be made strong and tight without being stiff and bulky.
- Not affected by moisture and perspiration.

RICO *SAFETY SHOES STITCHED* WITH THREAD OF **DACRON** ARE HIGHLY RECOMMENDED FOR THE **STEEL, OIL and CHEMICAL INDUSTRIES!**

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BROCHURE—"What's New in Safety Shoes" and **CATALOG**—"Safety Shoes for every job in industry"

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COMING! NEW STYLE DEVELOPMENTS IN HIGH AND LOW CHEMICAL SHOES! WATCH FOR IT!

Rolling Scaffolds

Mobile work stands of light-weight aluminum alloys save time, labor and reduce hazards on many jobs

WHENEVER weight can be reduced without sacrifice of strength there is always a saving in labor and frequently a reduction in accident hazards. An example is the introduction of light metal as a basic material for scaffold construction which steps up the off-the-ground efficiency of the individual worker on many jobs.

Particularly useful for maintenance work where the working platform must be shifted frequently is the rolling scaffold. It has some obvious advantages over the fixed wooden structure built on the job which, like many another "temporary" job is often hastily and insecurely built.

Aluminum rolling scaffolds are available in a variety of sizes to meet the specific needs of many types of maintenance work. Standard frames, braces and platforms can be assembled readily into a job-fitted scaffold of almost any size.

With such an installation, overall scaffolding is not required. The rolling scaffolds can be moved as the work progresses. A substantial saving in man-hours is offered in erection, use and dismantling, with a minimum of hazard.

Ordinarily, one man can erect and take down the average aluminum rolling scaffold. Decreased weight makes individual frames and parts easier to handle, with consequent advantage from the safety standpoint.

BASIC UNIT of sectional ladder scaffold consists of 6 foot 1 inch ladder sections, floor section, diagonal braces, horizontal brace, and casters.

These rolling scaffolds have many uses in industry. Applications are found both indoors and

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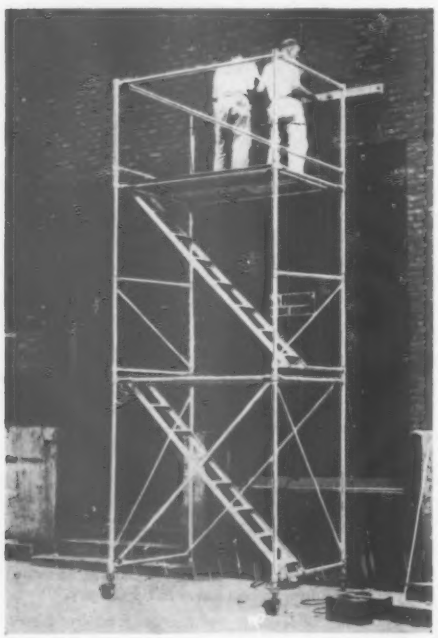
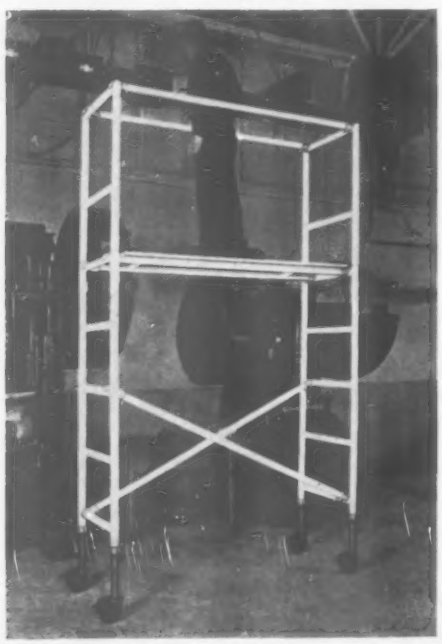


STAIRWAY TYPE aluminum rolling scaffold. Interchangeable parts permit a variety of assemblies for various job requirements. This scaffold was used for installing a loading crane. (Photos by Patent Scaffolding Company.)

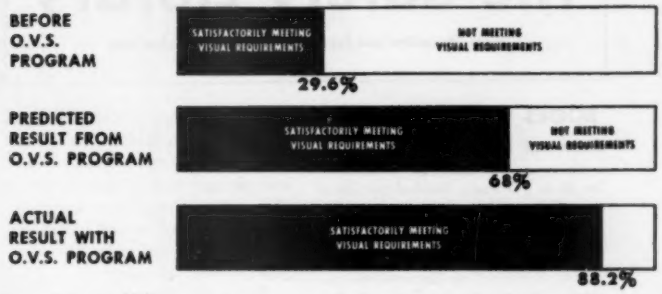


LADDER SCAFFOLDS are used for many types of maintenance and electrical work and can be used in cramped quarters. Adjustable legs permit use on uneven ground. Caster locks hold scaffold in place when work is being done.

BAUSCH & LOMB OCCUPATIONAL VISION SERVICE

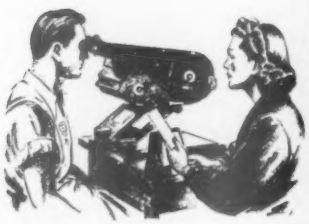
Case History

Percentage of Workers Meeting Visual Requirements Tripled On One Western Electric Job



Preliminary to testing of workers under the Occupational Vision Service program, Supervisors of the group of Key Adjusters at one Western Electric plant rated the job performance of their workers; 29.6% were classified "satisfactory in meeting visual requirements," 70.4% "unsatisfactory." On the basis of expected performance when visual standards were established, it was predicted that 68% would prove satisfactory. After the visual test standard had actually been applied for six months, a performance check-up revealed that 88.2% of screened key adjusters rated "satisfactory" on job performance.

A PROVED METHOD.....



To help your plant make money 9 Ways!

It's a matter of record that 4 of every ten industrial workers are visually unqualified for satisfactory performance on their jobs (established by the records of millions of visual performance tests of industrial workers in more than 4,000 different job categories). When visual skills are correlated to job requirements, working efficiency is notably increased. The Bausch & Lomb Occupational Vision Service is a scientific method for meeting this problem of "Eyes for the Job." *Employee participation is voluntary...and workers like the program.* Benefits which accrue in plants using O.V.S. (benefits which can accrue in *your plant,* too) include:

1. Improved quality of production
2. Increased production per worker
3. Reduced waste of materials and work rejects
4. Improved accident record
5. Reduced labor turnover
6. Lowered training cost
7. More effective placement
8. Reduced absenteeism
9. Improved employee relations

MAIL TODAY!

Send for the brochure "Eyes Right for the Job," which tells what the Bausch & Lomb Occupational Vision Service is, how easily it can be administered in your plant, and at what low cost.

BAUSCH & LOMB OPTICAL CO.
802-7 St. Paul St., Rochester 2, N. Y.

Please send me the brochure "Eyes Right for the Job," and complete details on the Bausch & Lomb Occupational Vision Service.

Name ..... Title .....

Company .....

Street ..... City ..... Zone ..... State .....

The Safety Library

Books, Pamphlets and Periodicals of Interest to Safety Men

BOOKS AND PAMPHLETS

Chemical Laboratory

Safety in the Chemical Laboratory. Dr. H. A. J. Pieters, Head of the Chemical Works Safety Department of the Netherlands State Mines and Dr. J. W. Creyghton, Head of the Medical Department of the Joint Netherlands Coal Mines. Published by Butterworths Scientific Publications, London and Academic Press Inc., Publishers, 125 E. 23rd St., N. Y. 10, N. Y. 1951; 258 pages; $3.50.

This publication consists of eleven chapters, general safety tables, appendix, and an index. The separate chapters relate to general safety considerations, precautions, fire hazards, explosion hazards, compressed gas cylinders, physiological effects of chemical substances, handling of toxic and injurious substances, toxic gases and dusts, protective devices and first aid, safety instructions and regulations, and analytical procedures.

This book was initially written for the instruction of employees in chemical laboratories. It was rewritten to serve as a complete text for students, chemists and management. Executive lists of references are given at the end of each chapter. The book aims at educating the reader in the principles of working safely in the laboratory, as well as warning of specific hazards in many types of normal work and experimentation.

The authors are to be commended for their attempt to treat a very broad and complex subject. The tables on the properties of flammable liquids and gases, classes of fires and extinguishers, storage of chemicals, irritants and toxic smokes, minimum concentrations, comparative toxicities, zones of toxicity, maximum permissible concentrations of poisonous substances, ventilation rates, noxious gases, first aid for chemical burns, protective devices, gas mask codes, common hazardous chemicals, colors for gas cylinders and piping systems, determination of noxious substances in air, methods of sampling, as well as the lists of published manuals are especially worthy of note.

Although Americans are not inclined either to purchase or read technical books other than American, this particular volume might well be used as a text in either high schools or colleges, as well as in training programs in chemical industries or industrial plants using a wide variety of chemicals. Many portions of the book should be valuable to plant managers, as well as a reference volume for chief chemists and doctors.

This book points the way to the recognition of many hazards in the chemical field and is worthy of serious study by those engaged in chemical or related occupations.

Harold R. Alley

Die Casting

Die Casting Industry Safety Manual. Published by the American Die Casting Institute, Inc., 366 Madison Avenue, New York 17, New York, 1951; 66 p. Price $6.00.

This is an excellent practical publication attractively bound in an 8-½" by 11" three punch binder which will permit easy insertion of supplementary data.

It is one of the most comprehensive manuals covering all phases of a single industry or process yet published. The simplicity of organization and language will make this book useful and valuable to persons in all phases of die casting operations.

The manual was written by the Safety Committee of the A.D.C.I. This committee is made up of safety engineers and others whose companies are members of the A.D.C.I.

A section of the manual, Plant Recommendations, is devoted to standard program and policy procedures applicable to any industry.

The section on Departmental Recommendations contains detailed suggestions on accident prevention methods for all departments and all processes in a typical die casting plant, regardless of size. The Appendix is of special interest and value. It includes safety precautions for die casting and trimming of magnesium alloys, standing orders for nurses in industry as approved by the Council of Industrial Health, of the A.M.A., blueprints of splash shields and safety interlock devices for preventing accidental or premature closing of die, various report and inspection forms, and reference lists of safety organizations, periodicals and text books.

All drawings of safety devices have been proved workable in actual operation by A.D.C.I. members.

This manual represents the type of safety guide which could be and should be developed by all industrial trade associations.

Civil Defense

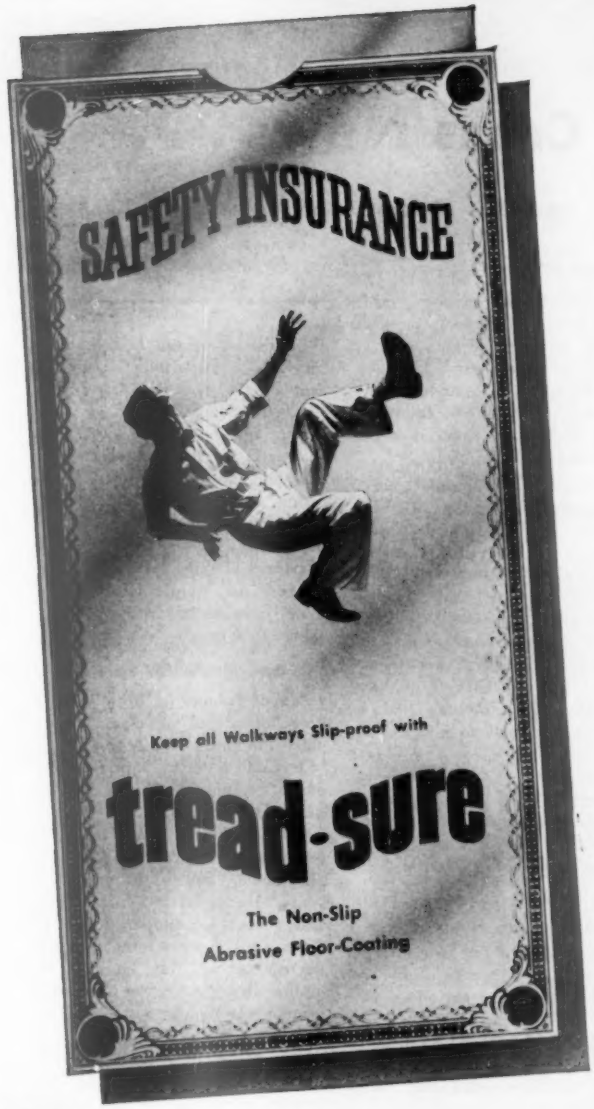
Critical Factors in Management Planning. With a section on A-Bomb Protection in Industry. Published by American Management Association, 330 West 42nd St., New York 18, N. Y. 1951. 32p. Price $1.25.
(Personnel Series No. 138).

Manpower Resources for the Emergency. With a section on National Mobilization Policy. Published by American Management Association, 330 West 42nd St., New York 18, N. Y. 1951. 44p Price $1.25.
(Personnel Series No. 139).

Health

Bureau of Mines Approval System for Respiratory Protective Devices. Published by U. S. Bureau of Mines 1951. 6p. Available from the Bureau's Publications Section, 4800 Forbes St., Pittsburgh 13, Pa. Free.
(Information Circular 7600).

—*To page 50*



Horn Tread-Sure produces a heavy long-wearing anti-skid surface on wood, concrete or steel. Tread-Sure is an abrasive filled brush-coating, simple and inexpensive to apply on any size area.

Tread-Sure is resistant to gasoline, alcohol, oil, grease, detergents, industrial waste and many types of acids. Tread-Sure provides a non-skid safety footing, giving the worker confidence and security by reducing accident hazards.

Tread-Sure maintains traction and resiliency and is comfortable to stand on. Designed for exterior as well as interior use, it may be brush applied over other paint or direct to unpainted surfaces. Used as it comes from container. Three non-glare colors—Battleship Grey, Red, Green.

Uses for Tread-Sure	Used in
Steps and stair treads	Industrial
Aisles—walkways	Plants,
Ramps—gangplanks	Food,
Grease racks—work benches	Milk,
Running boards	Meat Plants,
Washrooms—showers	Hotels,
Elevator floors—landings	Hospitals,
Machinery platforms	Schools,
Scale platforms	Railroads,
Foot pedals	Utilities,
Decks—hatch covers	Service Stations

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Green Cross News . . .

Activities of Local Safety Councils and Chapters

Compiled by TOM A. BURKE
Director of Local Safety Programs, Field Organization, NSC

Safety Councils Aiding Civilian Defense

The Philadelphia Safety Council "is in the civil defense program with both feet" according to Walter Matthews, manager of the Council. Matthews was recently made deputy director of the County Defense Program in Division 4, which includes engineering, public utility and public works. Howard Myers, vice chairman of the Council's board of governors, for many years actively associated with NSC industrial activities, is chairman of Division 2, the plant protection section, which is made up of the safety council's industrial and fire safety section members. A special training course in plant protection was completed recently and a second course started in late May to accommodate the large number of applicants. The Philadelphia Safety Council's work in the defense program was recognized recently at the national meeting of the National Resources Board held in Philadelphia, when the planning and development of the program was assigned to the Philadelphia Council.

Many other safety councils and chapters are taking an active interest in the national civilian defense program with particular emphasis on the plant protection work. In one community, St. Joseph-Benton Harbor, Mich., the Twin Cities Area Safety Council is directing all phases of the defense program with Council Manager Gerald Shipman in charge. Additional office help and adequate financial support has been provided so that the Council's regular activities will not be curtailed in any way.

The Greater Atlanta Safety Council is setting up a Fire Brigade Association to organize fire brigades in some 600 industrial plants and other organizations in the Atlanta area.

At most of the regular safety conferences this Spring, Civilian Defense was positioned prominently in the programs. These included the Greater New York Safety Conference, the St. Louis Industrial Safety Sessions, Central New York Conference, Northeastern Indiana Industrial Conference, Eastern Pennsylvania Conference, the Milwaukee Foreman's Safety School, Central States meeting, and the more recent Midwest Safety Show and Civilian Defense Conference. In addition many councils and chapters are using qualified defense speakers at their regular scheduled industrial meetings.

Association Newsletter

The Association of Safety Council Executives recently published the first issue of a periodic newsletter for its members. It is a six page mimeographed publication sent out from Cleveland where Jim Hays, manager of the Ohio Safety Council, finds time to turn out the newsy, well edited bulletin. Dr. B. L. Corbett of the Milwaukee Safety Commission is president of the Association.

Noyes Joins Los Angeles Chapter

Alfred M. Noyes recently was appointed director of safety for the Greater Los Angeles Chapter of NSC. He will be in charge of the industrial and fleet safety programs. Noyes, formerly director of industrial health, Los Angeles City Health Department, is president of the Southern California Industrial Safety Society and is a charter member of the American Industrial Hygiene Association, and founder of the Southern California section. He is a graduate of the University of Chicago, holding a B.S. degree in chemistry. A veteran of World War II he was assigned to Mobile Communications Unit 470, the first naval unit ashore in Japan.

One Month for Safety

Mayor Thomas A. Burke (sorry, no relation!) of Cleveland, designated the entire month of May as "Cleveland Safety Month." In his official statement Mayor Burke gave fitting recognition to the Greater Cleveland Safety Council for its accident prevention accomplishments down through the years. He urged the citizens "to take an active part in the annual Green Cross finance campaign conducted during May and do all within their power to eliminate accidents in the community."

Leroy Bamer Dies

Leroy G. Bamer, recently appointed as manager of the Capital District Safety Council, Albany, N. Y., passed away at his home in that city on May 29. He had been in failing health for some time. Bamer, who succeeded Thomas McShane as manager of the Council a few months ago, was well known in the New York area as an industrial safety engineer. He had been employed in private industry and later with the U. S. Department of Labor where he served during World War II in

the Industrial Manpower Conservation Program in the metropolitan New York area. Later he was employed as a safety engineer in the government's atomic energy project at Oak Ridge, Tenn.

Milwaukee Attendance, 11,186!

All attendance records were shattered at the 31st Annual Session of the Milwaukee Foreman's Safety School. At the closing session of this year's course on May 23 a total registration of 11,186 was announced by Manager Jack Muth of the Safety Division of the Milwaukee Association of Commerce which sponsors the series. Three hundred and six firms were represented in this year's schedule. Muth called attention to the fact that the frequency rate of participating plants in the Milwaukee area is just 42 per cent of the national average and cited this as evidence of the value of the school.

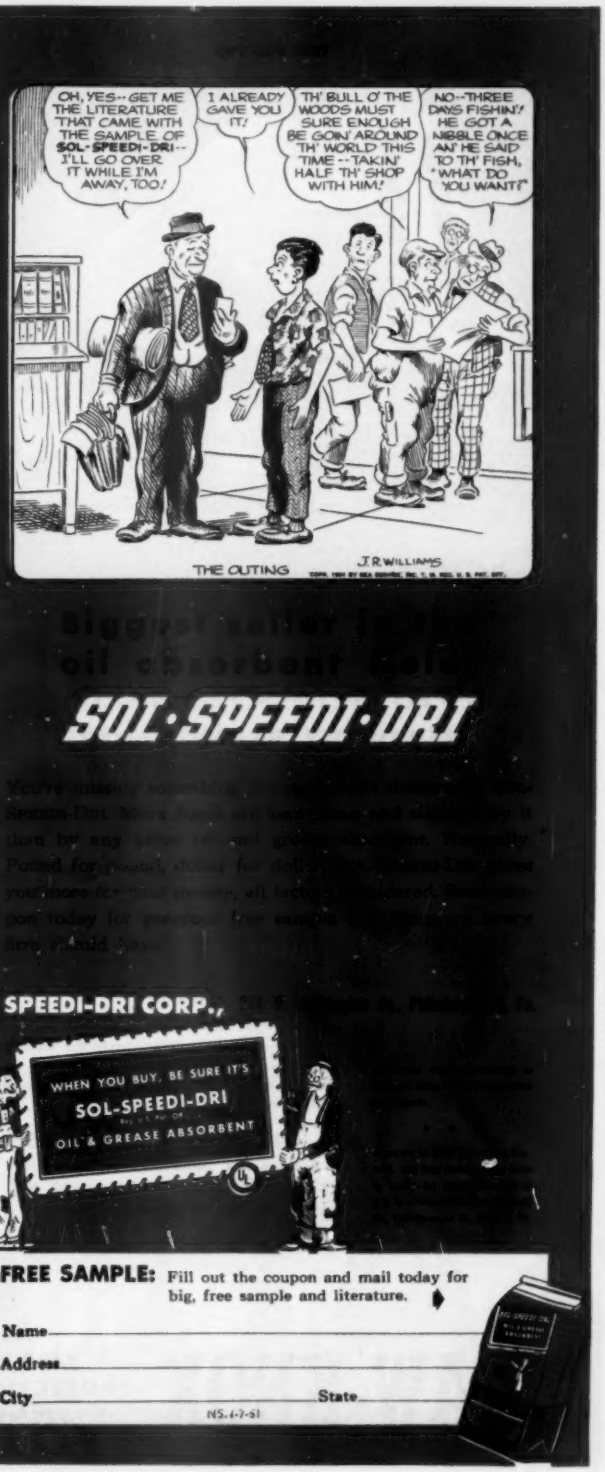
Jacksonville Engineers

The Jacksonville Safety Council announced recently that the North Florida Division of the Society of Safety Engineers will serve the Council as its industrial division in the future. Chairman George L. Wilcox of the Society is now a member of the Council's board of directors and directed the Council's June meeting, the initial program of the new division. According to Council Manager Mrs. Lennie Humphries, the move will make possible a greatly expanded industrial program for Jacksonville.

Conference Expanded

The 24th Annual Eastern Pennsylvania Safety Conference held at Bethlehem May 8-9 under sponsorship of the Lehigh Valley Safety Council and cooperative organizations, was a two day session this year instead of one day as formerly. Home, school, traffic and industrial programs were presented. The Industrial section was broken down into six sessions—public utility, fabricators, chemicals, paints, foundries, and commercial trucking. These were followed by a general session attended by 400 persons.

Living in the past has one point in its favor—it's much cheaper.


OH, YES--GET ME THE LITERATURE THAT CAME WITH THE SAMPLE OF SOL-SPEEDI-DRI-- I'LL GO OVER IT WHILE I'M AWAY, TOO!
I ALREADY GAVE YOU IT!
TH' BULL O' THE WOODS MUST SURE ENOUGH BE GOIN' AROUND TH' WORLD THIS TIME--TAKIN' HALF TH' SHOP WITH HIM!
NO--THREE DAYS FISHIN'! HE GOT A NIBBLE ONCE AN' HE SAID TO TH' FISH, "WHAT DO YOU WANT?"
THE OUTING
J.R.WILLIAMS
SOL·SPEEDI·DRI
SPEEDI-DRI CORP.,
WHEN YOU BUY, BE SURE IT'S
SOL-SPEEDI-DRI
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FREE SAMPLE: Fill out the coupon and mail today for big, free sample and literature.
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Deluge Systems, Wet Pipe Systems, Dry Pipe Systems, Water Spray and Fog Systems, Rate-of-Rise Sprinkler Systems, and Foam and Carbon Dioxide Extinguisher Systems.

For New York's Midtown Bus Terminal—the world's largest—Blaw-Knox engineered, fabricated and installed 22 separate sprinkler systems . . . 14 dry and 8 wet, requiring more than 9,000 heads. The size of this installation is relatively unimportant. Rather, it was that critical hazard presented by hundreds of vehicles with full gas tanks which prompted Port of New York Authority engineers to specify the fire-protection system that goes into action *the instant dangerous temperatures develop.*

Why settle for less? Blaw-Knox engineers will determine from a survey of your property the most economical and effective type of fire-protection system and submit their recommendations and estimate without obligation on your part.

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OF BLAW-KNOX CONSTRUCTION COMPANY
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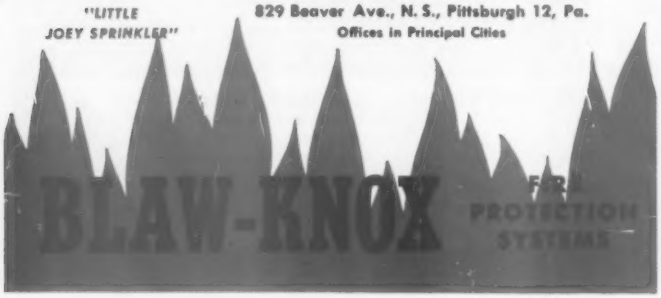

Safety Library

—From page 46

Hospitals

Standard for Non-flammable Medical Gas Systems. Published by National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass. 1951. 14p. Price 25 cents. (NFPA—No. 565).

Mines

Falls of Roof. The No. 1 Killer in Bituminous-Coal Mines. Published by U. S. Bureau of Mines. 1951. 11p. Available from the Bureau, Publications Section, 4800 Forbes St., Pittsburgh 13, Pa. Free. (Information Circular 7605).

Permissible Mines Equipment Approved During the Calendar Year 1950. Published by U. S. Bureau of Mines. 1951. 8p. Available from the Bureau, Publications Section, 4800 Forbes St., Pittsburgh 13, Pa. Free. (Information Circular 7606).

Some Roof-Control Practices in Coal Mines of the United Kingdom. Published by U. S. Bureau of Mines. 1951. 7p. Available from the Bureau, Publications Section, 4800 Forbes St., Pittsburgh, Pa. Free. (Information Circular 7599).

Gases

Gas Explosions and their Prevention. Published by U. S. Bureau of Mines. 1951. 13p. Available from the Bureau, Publications Section, 4800 Forbes St., Pittsburgh Pa. Free. (Information Circular 7601).

MAGAZINE ARTICLES

Accident Statistics

More Decisions on Unusual Injuries. (In Standardization, May 1951. p. 159).

Civil Defense

What if an A-Bomb Hits Chicago's Water Supply. (In Engineering News-Record, April 26, 1951. p. 36).

Construction

Safety Built into High Tower Hoists. By Robert L. Moore. (In Construction Methods and Equipment. May 1951. p. 75).

Cooperage

Safety by the Barrel. (In Modern Industry. May 15, 1951. p. 18).

Electricity

Electrical Safety — New Rules, Gadgets and Common Sense. (In Power. May 1951. p. 124).

Explosives

Handling Lox with Safety. By Don C. Jones. (In Mechanization. April 1951. p. 139).

Eyes

Eye Emergencies in Industry. By Arthur Alexander Knapp. (In Journal of the American Medical Association. May 5, 1951. p. 12).

Fire Protection

Foam Fire Protection for Tankers. By Alfred H. Taylor. (In National Fire Protection Quarterly. April 1951. p. 299).

Foremen

A Foreman's Attitude on Safety. By Paul G. Krueger. (In Southern Pulp and Paper Manufacturers. May 15, 1951. p. 50).

Health

Radiation Protection from the Industrial Hygiene Standpoint. By John C. Soet. (In Industrial Medicine and Surgery. May 1951. p. 227).

Value and Operation of an Industrial Medical Program. By Max N. Howard and Arthur E. Hoag. (In A.M.A. Archives of Industrial Hygiene and Occupational Medicine. April 1951. p. 375).

Hospitals

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Eyes and Danger

—*From page 28*

ers will need just the spectacle type of glasses. Those working with acids will require rubber mask goggles. Others will need cup-type goggles. The accompanying chart, prepared by Willson Products, is based on the American Standard Code for the protection of head, eyes and respiratory organs.

In buying safety equipment, it is important to select not only the proper style and type of equipment, but also to consider protective qualities. In selecting safety goggles, check *impact resistance* and *glass density*.

Where the work demands the protection that only heat-treated lenses can provide, the degree of protection afforded is governed largely by the impact-resistance of the glass, as required by Federal specifications GGG-G-501B.

To meet these specifications and the exact degree of impact-resistance required, lenses must be uniformly heat-treated to precise limits. An important factor is the accurate control of heating and cooling the lenses so as to avoid over-heat-treatment and brittleness.

Federal specifications GGG-G-511A also control the density of filter glass. These specifications, set up by the National Bureau of Standards, indicate the shade number that is acceptable to filter out injurious rays for certain operations to within safe limits, while still permitting through as much light as is necessary for clear vision. In these specifications, glass density is graded according to shades 3 to 14.[7]

The need for the program may be determined by an evaluation of eye accidents and eye hazards, and a start toward reducing or eliminating them may be made in choosing eye protective equipment. But unless the plans get beyond the paper stage and become a part of management's thinking, little progress can be made.

It has been found that management usually wants to know three things: (1) Why do we need the program, (2) *How much* will it cost, and (3) Can we make it work.

The reasons why an eye safety program should be developed are usually discovered when determining the need for the program. Accident statistics and compensation costs speak louder than words. Reports on how much eye injuries in the plant have cost during the past year and how much adequate safety equipment would cost usually show that it's cheaper to be safe than sorry. If a clear-cut, well-organized presentation of what the program will cost and what it will save is presented to management, half the battle is won.

Insurance statistics tell us that the average cost of an eye accident is $328 per injury for compensation and medical care.[1] Your own plant figures will be more meaningful and more accurate than these average figures, and you may be surprised at the amount of money spent in eye accident costs, compared with the estimated cost of putting the safety program into practice.

In estimating the cost of the program, consider also the cost of installing proper illumination. In some cases this might be only a change to higher wattage light bulbs; in other cases it might mean moving the source of light to a position where it does not cast shadows on the work. New plants are built with full consideration for light, but there are many older buildings where not enough thought has been given to this factor of eye efficiency and safety.

Other points to check in preparing an eye safety program and its cost concern elimination of hazards at their source. These include better methods of operation, guards and shields for machines, exhaust hoods for dust, gases and fumes, and purchase, replacement and repair of all personal safety equipment.

The cost of an accident is incomplete without some estimate of intangibles. Cost factors to be considered should also include lost-time on employees who assist the injured man, lost time apart from compensation, overtime resulting for an accident, time spent by others in straightening out the problems of an accident, such as filling out accident forms, reduced production due to incapacity of injured man, cost of time spent in training a new employee, etc.

After showing management the dollars and cents value of establishing an adequate safety program, an outline of a plan to make it work should strengthen its acceptance. In many plants, goggles and other protective equipment are bought but not used. Management has become somewhat indifferent to buying material that is hung on a hook, and then paying compensation costs besides. They begin to say, "What's the use of spending money for safety equipment, if it will not be used?" A sound method will help to dispel this attitude, establish more firmly the need for the program, and build confidence in its success.

Making the Program Work

Those plants which put the responsibility where it belongs—on the worker—find that this method usually works—if proper attention is given to it. Top management stands back of, but does not take credit for, the safety record. On the other hand, they do not place the responsibility on the worker, and then forget it. They pay constant attention to the development of the proper attitudes and habits. This is accomplished in several ways.

In addition to the safety director, the key man in the operation of the program is the shop foreman. If the safety director sells the first-line supervisor, a big part of the problem is solved. It is he who puts the program in motion—though he needs cooperation from the workers to keep it rolling. He is the one who usually sees that the men are:

1. Equipped with the proper protective devices.
2. Instructed in their proper use.

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3. Familiar with the safety rules.
4. Reminded of rule infractions.

Getting Them Worn

Chief reasons for failure to conform to a safety program are carelessness and discomfort.

An approach to carelessness can be made through providing incentives to be careful. Safety awards are used in some plants as incentives to careful operation. For example, at the Fogelsville plant of the Lehigh Portland Cement Company, the men are awarded safety shoes every year, if the plant completes the year without a disabling injury. Since shoes are a large item in the clothing budget, they are a prize worth striving for, and the plant has currently passed more than 1400 days of accident-free operation.

In addition the company keeps workers reminded of safety practices and builds safety habits through many different forms of promotion. Leaflets put out by the National Safety Council are distributed periodically to the men. Bulletin board posters plug safety. Several years ago Willson Products prepared and distributed a four-color poster which was designed to induce men to wear their safety goggles—rather than enforcing them to wear them. Each poster has a four-color section entitled "What You See," which shows a picture of fishing, hunting, the seashore, children playing around a Christmas tree, or some other happy occasion experienced by most of us. The other section, "What a Blind Man Sees," is black.

When the emotional approach is supplemented by an appeal to reason, action occurs and is more likely to be sustained. If workmen could realize what eye accidents cost them in lowered earning capacity, they might be more careful. The language of dollars and cents is pretty strong language, and usually makes an impression.

Few workmen realize, for example, that the maximum compensation for total loss of vision in *one* eye is less than $2,000 in most states, and as low as $1,000 in some. Maximum compensation for the loss of *both* eyes in most states is $6,000. Because of reduced earning capacity, a workman loses

that much in salary within two or three years after the accident. In steadily decreasing pay for the rest of his life, he loses much more. At the very least, most workmen are risking a 33⅓ per cent cut in salary for the rest of their lives every time they risk an eye injury[2].

This approach can be used in company publications and this medium provides another way of telling the safety story. Stunts are sometimes used—like raising a safety flag at the plant on the first of the month and keeping it flying at full mast for each day that no disabling injury occurs. When such an accident does occur, the flag is lowered to half mast for the remainder of the month.

The indoctrination of new workers is an important part of keeping a safety program alive. The new employee's earliest hours and days at the plant offer an opportunity that is priceless to impress him with the safety rules and the value and necessity of observing them.

But perhaps the most important part of a safety program is regular safety meetings—on company time—where the employees themselves can make suggestions for better and safer plant operation. At the St. Louis plant of the American Car and Foundry Company, monthly department meetings are held between safety engineer, foreman, and workers, and suggestions have come from these meetings which have had national adoption. One idea that originated there was the national Wise Owl Club, whose members have saved an eye by wearing goggles. The Wise Owl Club has a record to date of saving 1,304 eyes and has proved to be a great incentive to wearing goggles.

A more drastic practice which is being used in some plants to make the safety program work is a clear-cut understanding by the employee that safety equipment must be worn as a condition of working in the plant. No use of safety equipment—no job. The employee who doesn't wear his equipment is warned by the supervisor, or told about his negligence by his fellow workers. If he constantly refuses to listen, he is penalized, either by

—*To page 58*

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THE ACCIDENT BAROMETER

Prepared by the Statistical Division, National Safety Council

The death total for March was approximately 7,300, a 1 per cent increase over March last year. A sizable increase in motor-vehicle deaths was partly offset by a large decrease in public non-motor-vehicle fatalities. Deaths from home and occupational accidents numbered about the same as in March, 1950.

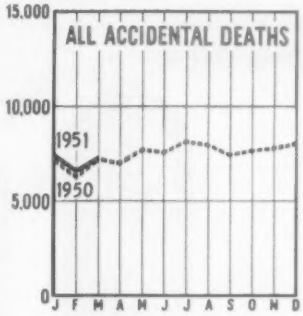
The three-month death total was about 22,000, an increase of 6 per cent over 20,700 in 1950. Most of the increase occurred in motor-vehicle fatalities but deaths from home and occupational accidents also increased. Public non-motor-vehicle deaths showed no change from last year.

Motor-Vehicle Deaths

The March total of motor-vehicle deaths was 2,710, an increase of 9 per cent over March last year. Compared to 1949, it was an increase of 26 per cent.

Deaths for the three months totalled 7,900, an increase of 10 per cent over the 1950 total of 7,170. The death rate per 100,000,000 vehicle miles was 7.1, or 1 per cent more than the 1950 three-month rate of 7.0.

Of the 46 states reporting for three months, 14 had fewer deaths than in 1950 and 32 had more deaths. Reporting cities with populations over 10,000 had an increase of 7 per cent in March and 4 per cent for the first quarter of 1950.



	1951	1950	change
March	7,300	7,200	+1%
Three Months	22,000	20,700	+6%

Regional changes from 1950 in the three-month death totals were:

North Atlantic	+ 8%
South Atlantic	+ 6%
North Central	+ 5%
South Central	+ 4%
Mountain	+20%
Pacific	+36%

Occupational Accidents

Deaths from occupational accidents totalled approximately the same as in March last year—1,200. The total for the three months was 4,100, an increase of 8 per cent over 1950.

The March frequency rate for plants in community council inter-plant contests was 8.08, a 6 per cent increase over last year. The March rate for plants in seven sectional contests conducted by the National Safety Council was 6.78, an increase of 3 per cent over 1950. The three-month rate in the community council contests was 8.14, an increase of 4 per cent; in sectional contests it was 6.91, no change from last year.

Public Deaths

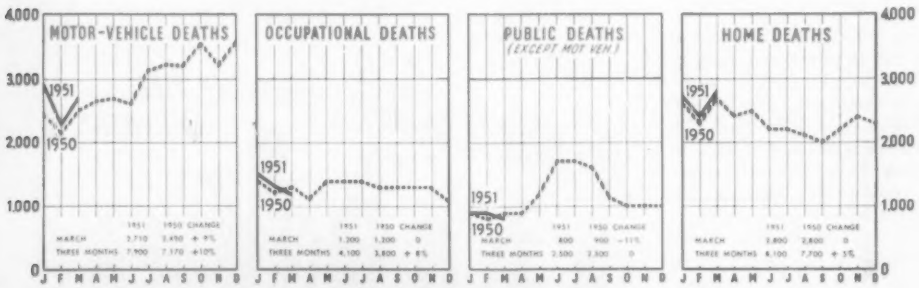
The death total for public non-motor-vehicle accidents in March was 800, a reduction of 100 deaths from last year.

Deaths during the three months totalled 2,500, about the same number as in 1950. Decreases in deaths from transportation accidents, burns, falls and drownings were offset by increases in deaths from firearms and unclassified public accidents. Reductions were reported in deaths of persons 15 to 44 years and 65 years and over. Increases were recorded for children under 15 years and persons 45 to 64 years old.

Home Deaths

March deaths from home accidents numbered approximately 2,800—no change from last year.

The three-month death total was 8,100, an increase of 5 per cent over 1950. With the exception of fatal poisonings, all other types showed increases over last year. The largest changes were recorded for deaths from burns and firearms accidents. Most of the increase occurred among children 5 to 14 years and persons 25 to 44 years. The death record for persons 15 to 24 years and 45 to 64 years showed some improvement over last year.



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The FLOR-DRY Company

Eyes and Danger

—From page 55

a pay deduction or by the withholding of some other benefit. If union rules do not prevent, he may be fired. In some plants mandatory use of safety equipment is written into the union contract.

Through the attrition process, water wears down the hardest stone. And through the attrition process, carelessness can be overcome, too—if it is handled with sufficient frequency from many directions, and always with considerable understanding and tact.

Comfort Counts

Common complaints are:

I can't see as well with the glasses as I can without them.

The glasses hurt my nose and ears. They are too hot.

The sweat runs down my goggles and I can't see through them.

These can be reduced, if not eliminated, if safety equipment is selected with due care for the wearer's comfort, and is kept in first-class condition. Fortunately, it's not hard to find comfortable goggles for almost everyone. Manufacturers are constantly trying to make equipment more and more comfortable, and goggles are now available in a wide range of bridge and nose sizes to fit all types of faces.

And as new materials come on the market, they are tested and used for improving goggles. New plastics, light in weight and comfortable, give sufficient protection for many semi-hazardous jobs. Ventilation ports in many models keep glasses from steaming or fogging, and make it as easy to see with goggles as without them.

It's important to see that goggles are properly fitted. In some plants this is done by the plant optician; in others, by the safety director or supervisor. Every time it's done, it provides an opportunity to sell safety to the worker.

To keep goggles comfortable, they should be regularly re-conditioned, washed, and sterilized. Usually this is done at a central supply room at regular intervals. If goggles are issued to any other man, they should be cleaned with germicide.

For day to day use, or in plants

where no central supply department exists, the supervisor or safety director should make it easy for the men to care for their goggles themselves. He should issue a case for the goggles and find a suitable place in the locker or elsewhere for the goggles to be kept in their case. This keeps them clean, unscratched, and safe when not in use.

A man will not use goggles he cannot see through. Many safety directors provide cleaning fluid and soft, clean cloths or tissue paper for drying. Another good thing to provide is anti-fogging compound, to be used when atmosphere conditions cause fogging of the lens. Plastic cleaner keeps plastic equipment clean and minimizes scratches.

Part of the business of keeping goggles in good adjustment is keeping frames tight and straight. Special repair tools are available for this purpose. There are eyelet pliers, repair hammers, screw head files, reversible blade screwdrivers, and cutting nippers, snipe nose pliers, and other similar tools—all made for the delicate work for which they are recommended. Some plants have maintenance men who push carts equipped with adjustment tools and cleaner through the plant, and take care of the men while at work.

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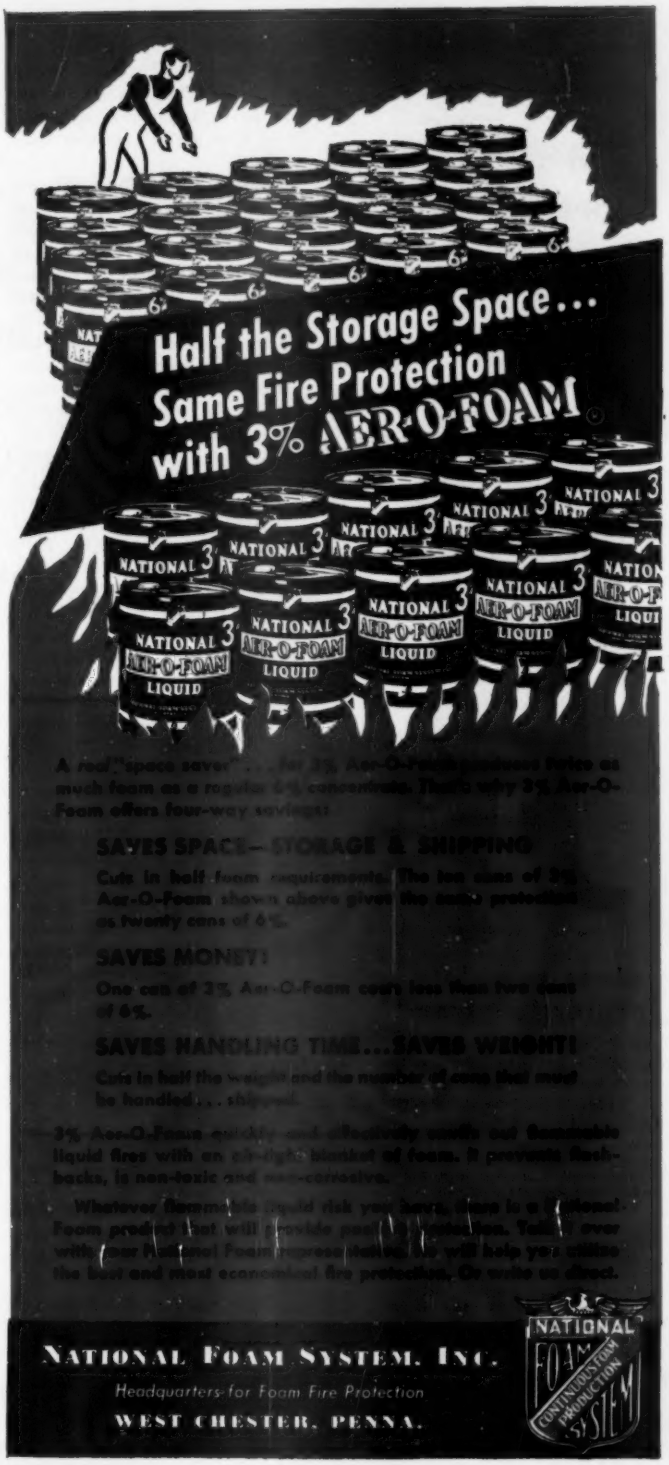

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Accident Death Rates

—*From page 27*

under the 1903-07 average. Among people 45 to 64 years old the rate was 61, a 1 per cent reduction from 1949, and 43 per cent from 1903-07.

Regional Death Rates. Of the 44 states reporting accidental deaths in 1950, 17 had death rates below 60, 16 had rates of 60 to 70, and 11 had rates higher than 70. In general, the lowest rates were recorded in the New England states, 50, and the Middle Atlantic states, 51. The average rate for the Mountain states was 88. In the rest of the nation rates varied only from 58 to 65.

Type of Accident. Motor-vehicle deaths ranked first among accident types in 1950, with a total of 35,000 deaths, an increase of 11 per cent from 1949. Falls ranked second with 18,500 deaths, or 13 per cent fewer than occurred in 1949. These two types of accidents alone accounted for nearly three-fifths of the accidental death total. No other accident type even approached them in importance. Fatal burns, the next most important type, numbered 6,800, only one-third the death total for falls.

The population death rates in 1950 were greater than those in 1949 for burns, railroad accidents, poison gases and motor-vehicle accidents, the increases ranging from 2 to 9 per cent. For firearms accidents, the rate was the same for both years. Decreases in rates of 9 to 14 per cent were recorded for poisoning, drowning and falls.

Table II gives the accidental death total, the death rate and the change in rate for the principal types of accidents.

Occupational Accidents

Deaths in occupational accidents totaled about 15,500 in 1950, an increase of 500 over the 1949 figure. Disabling injuries numbered about 1,950,000, or 100,000 more than in 1949.

These deaths and injuries cost the nation a total of $2,500,000,000 during the year. Of this amount $800,000,000 represents the value of services lost to the nation as a result of disability, even though the worker himself was compensated for a part of the loss. Medical care for injured workers cost $130,000,000 and overhead cost of insurance totaled $250,000,000. The remaining $1,300,000,000 represents the estimated money value of damaged equipment and materials, production slow-downs and time lost by other workers not involved in the accidents.

The cost of occupational accidents to industry alone averaged $40 per worker, but this average cost includes lower costs in many organizations where effective safety programs are being used. Where little has been done about accident prevention, the average cost of accidents is usually much higher.

Absence from the job by injured workers was responsible for a total loss of working time of about 45,000,000 man-days. This figure does not include time lost on the day of the injury or time required for further medical treatment after return to work. Additional losses, due to reduced productivity of others in the neighborhood of the accident, and delays while damaged equipment was being repaired brought the total working time lost during 1950 to about 275,000,000 man-days—equivalent to the working time of approximately 1,000,000 men for a full year.

Death rates. About 27 out of every 100,000 workers in the nation were killed in occupational accidents during the year. This average for all industry results from death rates for individual industries ranging from a low of 12 per 100,000 workers in the trade industry to a high of 110 deaths per 100,000 workers in mining, quarrying, and oil and gas wells.

Off-Job Accidents

As usual, many more workers were killed off the job than on the job during 1950. Out of a total of 47,500 worker deaths during the year, about 32,000 or 67 per cent were the result of non-occupational accidents—in the homes, on the streets and highways, or in other public places. The following table compares the death and injury totals for on-job and off-job accidents to workers

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- All you have to do is to see that every employee in your company is handed a Payroll Savings Application and given an opportunity to make his or her own decision. No pressure is needed.

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Sure grip — two clips do the work of three.

Extra strength and safety — only type of clip where entire clip, including bolts, is drop-forged.

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LAUGHLIN

THE MOST COMPLETE LINE OF DROP-FORGED WIRE ROPE AND CHAIN FITTINGS

and the classification of the off-job injuries:

Place of Accident	*Deaths*	*Injuries*
At work	15,500	1,950,000
Away from work	32,000	2,550,000
Motor-vehicle *	18,000	650,000
Public non-motor-vehicle	7,300	900,000
Home	6,700	1,000,000

The ratio of off-job injuries to total injuries is even higher in organizations with good on-job safety programs. Several industrial establishments with good safety records have reported that off-job accidents are responsible for 85 to 90 per cent of the disabilities due to accidental injuries.

Motor-Vehicle Accidents

Motor-vehicle accidents in 1950 were responsible for 35,000 deaths in the United States. These accidents also caused 1,200,000 nonfatal injuries, of which 100,000 left the victim with some permanent impairment.

Motor-vehicle travel in 1950 was even greater than in 1949, nearly matching the increase in deaths. The death rate per 100,000,000 vehicle miles went up only from 7.4 in 1949 to 7.5 in 1950. In 1940 the rate was 11.4, so in ten years it dropped one-third.

Motor-vehicle accidents are estimated to have cost $3,100,000,000 in 1950, of which $1,250,000,000 was property damage.

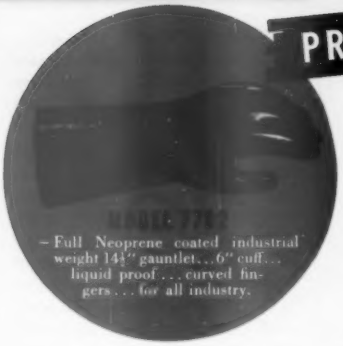
In cities, 10,200 persons were killed in motor-vehicle accidents, an increase of 7 per cent from 1949. In rural areas the death total was 24,800, an increase of 13 per cent from 1949.

Until the end of the war, the mileage death rate was approximately 11.5 per 100,000,000 miles of travel. Had the same mileage death rate developed in 1950, the death total would have been approximately 54,000, or 19,000 more than the actual number.

Home Accidents

Accidents on home premises in the United States were responsible for 27,500 deaths in 1950—3,500 less than in 1949. Nonfatal injuries totaled 4,100,000. This means that nearly 3 per cent of the entire population of the country suffered disabling injuries in home accidents; and 110,000 of these were left with some permanent impairment. These accidents caused an economic loss of ap-

PROVEN PROTECTION?



– Full Neoprene coated industrial weight 14½" gauntlet... 6" cuff... liquid proof... curved fingers... for all industry.

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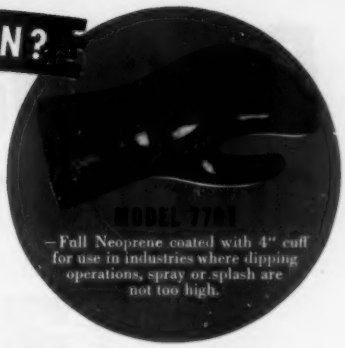
HOOD

gloves!



– Full Neoprene coated with 4" cuff for use in industries where dipping operations, spray or splash are not too high.

"Put your employee's hands into a safer glove"

Are you sure that the gloves your employees are wearing are providing the best protection possible?
You can depend on this vital protection with Hood Industrial Work gloves because they are given rugged wear, before distribution, in actual "on the job" testing in industries and uses of every conceivable type. You *know* when you purchase Hood gloves that their ability to give more protection has already been proven!
So cut down needless costs by raising the standards of protection, efficiency, wear and comfort for employees' hands today with Hood gloves. They're better, whatever you desire . . . Rubber, Neoprene or Plastic—and for *every* job!

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HOOD for NEW Safety PLUS

HOOD RUBBER CO. Watertown, Mass.

USE BERYLCO SAFETY TOOLS

If you are working with explosive and inflammable liquids, gases and dusts, a spark can put you out of business quicker than it takes to talk about it. Berylco Safety Tools effectively reduce the danger of sparking. In addition, because they are made of high performance beryllium copper, they are long lasting, noncorrosive and nonmagnetic. Berylco Safety Tools are sold through jobbers. Write for the name of the one nearest you.

THE BERYLLIUM CORPORATION
Dept. 1G, Reading 14, Pa.

BERYLCO

Don't Give FIRE an opening!

They BLOCK The Spread of Flames at every opening

FIRE TRAVELS FAST through unclosed or poorly protected doorways, windows, corridors or other openings, where flame-carrying drafts can quickly spread disaster. Block fire at these danger zones with Kinnear Rolling Fire Doors!

You get *positive, automatic, dependable* fire protection at any opening with these famous Akbar Fire Doors. They're *pushed* downward by a strong spring . . . *controlled* in downward speed by a special safety device . . . and operable *after* automatic closure, for emergency use. The doors remain coiled out of the way overhead when not in use, but lower into place with speed and efficiency when fire threatens. They cut off drafts, confining fire to small areas. Approved and labeled by Underwriters' Laboratories, they have saved as much as *one-third* of their cost *annually*, in reduced insurance rates. Built to fit openings of any size. Write for complete information.

Kinnear Rolling Fire Doors can also be equipped for daily service use, with or without motor operation. But the regular (non-labeled) Kinnear Rolling Doors are preferred for service use where extra fire protection is not required.

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Saving Ways in Doorways
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Factories:
1720-40 Fields Avenue, Columbus 16, Ohio
1742 Yosemite Ave., San Francisco 24, Calif.
Offices and Agents in All Principal Cities

proximately $500,000,000.

The decrease in deaths came chiefly from the 17 per cent drop in fatal falls and in unclassified home accidents. There was also a decrease of 200 in deaths from mechanical suffocation and 100 in deaths from poisonings. The reductions were partly offset by increases of 200 in fatal burns, and 100 each in deaths from firearms accidents and poisonous gas.

The leading cause of home deaths continues to be falls. Of these falls, well over four-fifths were of persons 65 years or more of age. However, accidental injuries from falls in the home are not exclusively a problem of old age. Older persons do not recover from their injuries as readily as younger persons, but various home accident surveys have demonstrated that falls are a leading cause of injury in the home among all age groups.

Public Non-Motor-Vehicle

Approximately 14,500 persons were killed in public non-motor-vehicle accidents during 1950. Of these, 3900 were killed in accidents involving street cars, railroad trains, boats, airplanes, bicycles and other non-motor road transport vehicles, but not involving motor vehicles. The largest single cause of public nontransport deaths was drowning, with a total of 4,200 deaths not including those associated with transport accidents or those in which the person was drowned in the course of his occupation. Deaths from falls ranked second with 2,600, deaths from firearms accidents third with 950, and fire burns and injuries associated with conflagrations fourth with 750 deaths.

Railroad

During 1950 a total of 3,627 deaths occurred in railroad accidents. This total includes deaths of passengers, employees, other nontrespassers and trespassers. This is an increase of 3 per cent from the 1949 total.

Deaths of passengers on trains rose from 29 in 1949 to 184 in 1950. The passenger death rate in terms of passenger miles traveled was 0.58 per 100,000,000 passenger miles. Trespasser deaths number 1,218, a [illegible] per cent decrease from the previous year.

Deaths of employees on duty totaled 399, a 10 per cent decrease from 1949. The occupational death rate, for Class I roads only, was 0.14—the lowest rate since records have been available. The frequency rate for all injuries—deaths, permanent disabilities and temporary disabilities causing absence of one or more days—was 14.36 injuries per million man-hours worked.

Deaths from grade crossing accidents number 1,698. Collisions between trains and motor vehicles accounted for 1,523 of these deaths, a 7 per cent increase from 1949. Motor-vehicle mileage was 10 per cent greater than in 1949.

Aviation

The 1950 passenger death rate for the domestic passenger-carrying operations of scheduled air lines was 1.1 per 100,000,000 passenger miles, the lowest rate on record. The passenger death rate in 1930 was 28.6, or 26 times the 1950 rate. Out of a total of 111 persons killed in domestic scheduled air line passenger-carrying operations, 96 were passengers, 13 were crew members and 2 were occupants of a house that was hit by a plane.

Deaths in civilian nonscheduled air-carrier service and private flying combined totaled 913 in 1950, or 11 per cent fewer than occurred in 1949. Of these, 42 deaths occurred in nonscheduled air-carrier operations, and 871 in other commercial operations and in private flying.

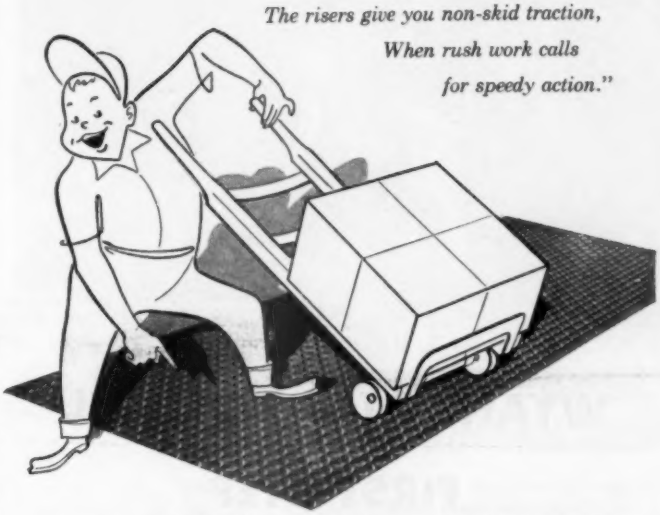
District Manager

—From page 19

tice, safe conduct at the furnaces, around machinery, assembly lines and moving vehicles, live wires, etc.—all are important.

Mechanical hazards can be eliminated by the method just outlined—operational analysis. The solicitation of the foreman's opinion is important, as he is the one best qualified to offer a solution. Particularly when accident frequency is being investigated, the foreman who is in direct charge of the injured employee will be of high importance in bringing out suggested preventive measures of

"Just look at the pattern of Multigrip
(The reason men and trucks don't slip).
The risers give you non-skid traction,
When rush work calls
for speedy action."



U·S·S MULTIGRIP FLOOR PLATE is pleasingly symmetrical in appearance. The pattern of the risers is continuous whether adjoining plates are laid end to end, side to side, or side to end. This minimizes waste in cutting . . . keeps cost down. The scientifically-designed risers mean safety and comfort underfoot. The sloping sides of the angular-shaped risers make it impossible to catch the toe of a shoe on them.

Vehicles roll straight and true on Multigrip's flat-topped risers, too. There are no gutters to catch a narrow-tired wheel . . . wheels roll *on* the risers, not *between* them. And because there are no pockets to hold dirt, grease and water, Multigrip is easy to clean. Drainage is complete in any direction.

Get further information about Multigrip from your nearest steel warehouse or write to us direct.

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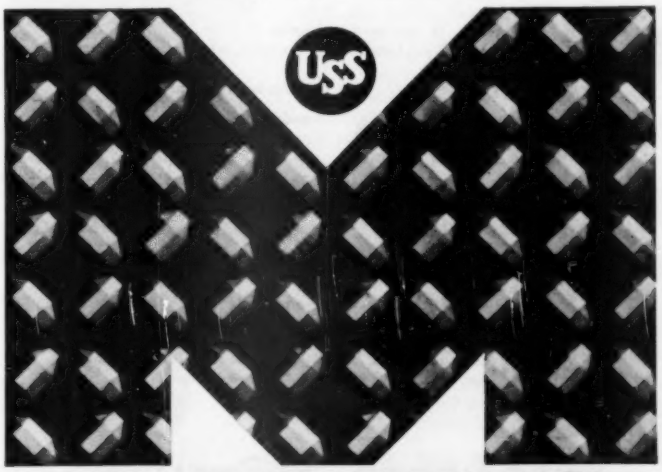

U·S·S MULTIGRIP FLOOR PLATE 1-973

UNITED STATES STEEL

WYANDOTTE ZORBALL

FIRST STEP TO SAFETY FIRST

Zorball is an all-purpose, top-quality floor absorbent. In any shop, Zorball on the floor is your first step to prevent falls and fires which result from waste oils, paint and other liquids.

Unlike other floor absorbents, Zorball absorbs without breaking down. This increases its absorbing power, makes it easier to sweep up and safer to walk on.

Your Wyandotte Representative can prove to you in a few seconds that Zorball is a superior floor absorbent. Call him today for a demonstration.

P.S. If you have a cleaning problem, write Wyandotte for free technical information and service.

WYANDOTTE

ZORBALL

THE SAFEST ALL-PURPOSE FLOOR ABSORBENT

Reduces fire hazards

Reduces slipping accidents

Is chemically inert and nonflammable

Does not "mud" or crack when saturated

Safe on skin, fabric, wood, metal or rubber

"Cleaning the World"

THE WYANDOTTE LINE — products for burnishing and burring, vat, electro, steam gun, washing machine and emulsion cleaning, paint stripping, acid pickling, related surface treatments and spray-booth compounds. An all-purpose floor absorbent: Zorball. In fact, specialized products for every cleaning need.

WYANDOTTE CHEMICALS CORPORATION
WYANDOTTE, MICHIGAN
SERVICE REPRESENTATIVES IN 88 CITIES

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safety. He is the man on whom both management and the safety department must rely to enforce corrective measures on the individual plane to prevent recurrence.

The safety man's report is a vital unit in accident control, and is the medium by which cause-data can be isolated and attacked. A master report form is of real value to the district manager in measuring the effectiveness of safety department control in combating machine injuries.

I believe administrative responsibility for safety can be developed through three courses of action: Organize, deputize, supervise.

To organize means to collect all the facts and cooperate with all branches of the plant, to hold safety meetings regularly, and give an adequate analysis of problems in safety application to insure complete understanding of the need for the meetings.

Good organization requires that each individual participating in safety enforcement be brought to a realization of the seriousness of the industrial accident problem. He must be provided with a knowledge of what industrial accidents are and that, whether or not they involve bodily injury, they cost money. He should be taught that accidents vary in the degree of injury and the difference between a fatal injury, a disabling injury, a minor injury and a non-injury accident may be as little as a split second. Furthermore, every non-injury accident should be capitalized on by analysis to correct an unsafe condition.

He must spread the knowledge that every time an accident occurs one of three conditions existed: Either something was physically wrong, something was done wrong, or something was not done at all. He must inculcate in the mind of the shop worker a *will to work safely*. This is as valuable a quality in any employee as is his skill.

The safety department must organize so that safety training of the employee will start the first day he is employed and end only when his employment terminates. It should be organized so that each employee takes an active part by becoming in his own work area an acting safety committeeman. Every employee, at some time or other

during his employment, should serve in an official capacity in a departmental safety committee meeting. These meetings will be fruitful only if they are conducted on a business-like basis.

The safety department must so organize its program that safety instruction reaches each employee in the plant—and in the proper sequence. To accomplish this, I would suggest the adoption of the highly satisfactory sequence of instruction recommended in National Safety Council Safety Series No. VOC. 1:

1. The safe procedure for the particular operation should be clearly stated.
2. The reason for the safety instructions should be carefully explained.
3. A demonstration of the exact methods to complete the operation should be given.
4. The worker should then be given the chance of explaining to the instructor his understanding of how the operation should be done.
5. When the worker's explanation of the job is satisfactory, and any misunderstanding has been adjusted, the instructor should allow the worker to demonstrate the job. This demonstration should include several cycles of the complete operation so that by repetition the correct method will be firmly implanted in the man's mind.
6. Any mistakes made during the worker's demonstration should be immediately corrected.
7. The instructor should make it his business to check the job from time to time to make certain that all production and safe practices are being followed. These job checks should be made frequently, until the instructor is satisfied that the man is following the specified routine.

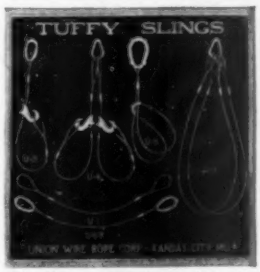
To deputize means the appointment of subordinates to follow established procedures, instruct personnel in the application of safety measures, and to install the proper safeguards necessary to clean, safe operations.

To supervise entails the need to know "what should be done, how it should be done, and who should do it." "Follow through" is a virtue, and he who lacks that increment of effort or who shirks that obligation in safety application is of no value as a safety engineer or inspector and hinders the program. Constant follow through is necessary to insure that the plotted course is being pursued, and that inherent details are not overlooked.

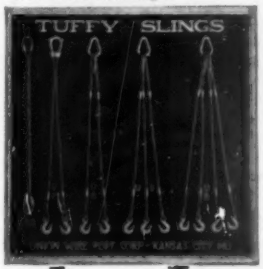
Periodic checking of the text and outcome of supervised safety meetings; analysis of accident re-

Tuffy

Magic Word for Putting More PLIANT POWER into Wire Rope Slings



Tuffy Slings are proof-tested to twice their safe working load which is indicated on the metal tags.



While wire rope slings are not purposely tied into knots, nevertheless it's difficult to avoid kinking in any "on again—off again" load handling service.

Best way to set up an extra safeguard against such abuse is to specify slings especially designed to better resist this abuse. The patented, 9 part braided wire fabric construction of Tuffy slings is such that kinks are easily straightened out without material damage.

In addition to super-flexibility, Tuffy construction prevents stranding even when contact with sharp corners may eventually cut one of the 9 braided parts.

Every Tuffy Sling is proof tested to twice the safe working load with a safety factor of 5. Eye splices develop 95% of the ultimate braided rope strength. The pliant power of Tuffy Slings makes hitching easier and it adds tremendously to sling life.

Factory fitted in 10 types and factory packaged, Tuffy Slings are easier to order and stock. Just say or write Tuffy Sling to your distributor (listing in phone book, yellow section) and give him the type, length and diameter. Similar simplified specifications will also get you the ultimate low cost in draglines, scraper rope, logging chokers, rotary lines and mining rope—all members of the Tuffy family of special purpose wire ropes. See your Union distributor or write—

UNION WIRE ROPE CORPORATION
2224 Manchester Ave. Kansas City 3, Mo.

Specialists in Wire Rope, Braided Wire Fabric and High Carbon Wire.

union Wire Rope

AB-101

"Peel FERA-MAT .....roll it for non-slip grip!"

"Speed, safety and savings go together in our plant, thanks to Fera-Mat. It covers large areas faster than any safety flooring material I've ever used. It peels like adhesive tape, goes down in a hurry and *stays safe* — despite the month-in, month-out pounding of heavy traffic."

"A trowel plus FERROX equals safety for me!"

"Fera-Mat's fine, but I'm sold on Ferrox for three good reasons. One, it trowels easily—perfect around machines and for uneven surfaces. Two, I get excellent coverage. Three, I save money with economical Ferrox and cut labor costs, too. Yes sir, Ferrox makes safety-sense to me."

Don't slip up on safety! Use either FERA-MAT or FERROX, depending on conditions in your plant. No matter what your "slippery floor" problem, you will find the answer in American Abrasive's wide-range line of non-slip treads and plates, including FERALUN, BRONZALUN and ALUMALUN.

Send today for AMERICAN ABRASIVE'S Fact Folder on Safety Floorings

AMERICAN ABRASIVE Safety Floorings

AMERICAN ABRASIVE METALS CO. · IRVINGTON 11, N. J.

ports and their value to the safety supervisor and his application of their lesson, above all, insure you that *you* above anyone else are a way-shower, and an example for your fellow employees.

The safety department holds an important place in our plant management. Plant safety, however, is not merely an orphan child for the safety department to care for. The foreman or supervisor should know his men; he personally instructs them and trains them; he is on the job and has the one outstanding opportunity to get across the safety message. Accidents are his responsibility, just as much as faulty manufacture is. Production and quality go hand in hand, and safety and good housekeeping are strong contributing factors.

Guide your foremen! Counsel to their shortcomings with kindness and understanding. Win them to your thoughts and you will not be standing alone. You will be calling the signals; they will be making the plays.

When this has been accomplished, you have aided your district manager in carrying out his obligation to keep the plant operating at an economical level under his own "3-S" code — *Safely, soundly, solvently.*

Mobilizing Against Fire

—From page 35

steel frame, a fairly light type of construction with large areas which in turn involve beams of considerable span. The A-bomb caused the roofs of such buildings to collapse and such buildings were particularly vulnerable to fire damage if the decks of the steel frame roofs were of wood planks.

It is clear that there will be some destruction to ordinary wood buildings, brick buildings and industrial buildings of the noncombustible steel frame type. This destruction is likely to be complete directly under the impact of an A-bomb and it would be considerable at fairly long distances from the center of the impact.

Buildings of fire-resistive construction, either of reinforced concrete or where the steel frame is protected by considerable fireproofing, will stand up much better

both to blast and fire effects. What this means is that superior construction will tend to reduce the extent of damage in any industrial property.

In planning fire defense with war situations in mind, the industrial executive is likely to ask what modifications of existing practice he should consider. In view of the fact that his plant is likely to be in an area that is only partially damaged, he is likely to conclude it is prudent to do all of the things for wartime protection that he would do in peacetime. For example, I would strongly recommend that all new buildings be equipped with automatic sprinklers with a primary water supply from a gravity tank. Secondary supplies should preferably be tanks from which the water can be taken with a fire pump.

If a plant does not now have a large amount of water in ground storage at the plant, the provision of such locally-stored water for fire protection would be an excellent measure to undertake as a matter of wartime defense. Supplies from public water systems are a doubtful quantity. One of the important lessons of the last war was that fires were fought principally with water that was actually stored at the property on fire. It was not possible for fire department crews to relay water very long distances through hose lines if the regular water mains were broken.

There is a possibility that a gravity tank might be blown down by bomb blast. However, in light of the fact that the plant is likely to be at some distance from the actual center of impact of the bomb, the chances are extremely good that a gravity tank will not be any more readily blown over than will the buildings of the plant itself. Standard gravity tanks and towers are built to resist wind loads of hurricane proportions. In earthquake areas they are designed to carry additional horizontal wind loads or they have other features built into them which make these tanks and towers surprisingly resistant to blast forces.

Plant Defense Organization

Many companies engaged even in hazardous operations have enjoyed immunity from serious fires

Get 'Em from Your Jobber!

You can be sure your Pyrene* jobber will recommend the *right* extinguishers for your fire hazards—because there's a Pyrene for *every* fire hazard! Standardize on Pyrene, a symbol of quality since 1907.

*T.M. Reg. U.S. Pat. Off.

CARTRIDGE-OPERATED

New stainless steel shell—new low price. No annual recharging; no acid. For fires in wood, paper, textiles. 2½ gal. size.

AIR FOAM

Couple playpipe to hose line. Every 19 gals. of water and 1 gal. of Pyrene Foam Compound yield 200 gals. of foam! For flammable liquids and ordinary combustibles.

VAPORIZING LIQUID

World's best all-purpose extinguishers. Safe on electrical fires, effective on flammable liquid fires. 2 qt., 1 gal. (above) pressure types. 1 qt. (large illustration) and 1½ qt. pump types.

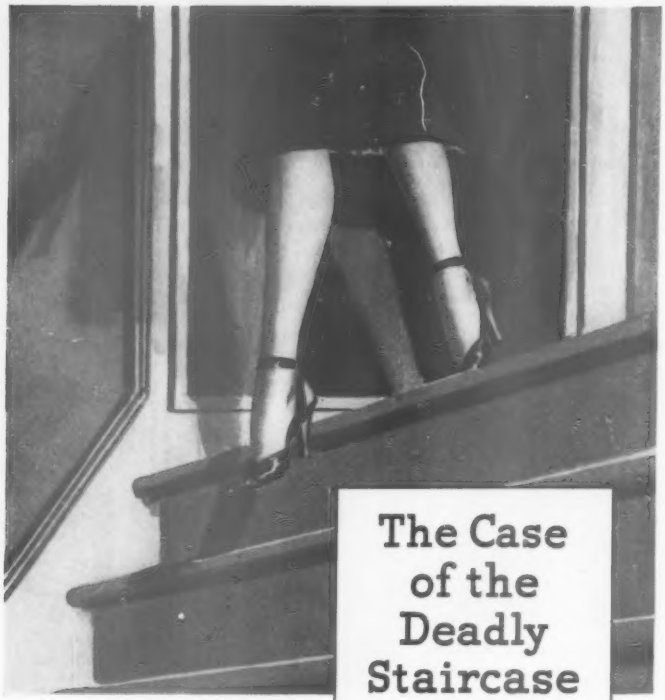
CHEMICAL FOAM

2½ gal. size produces about 22 gals. of fast-acting foam. Ideal for flammable liquid and ordinary combustible hazards. Seamless copper or stainless steel shell. (Pyrene Soda-Acid also available in stainless steel or seamless copper.)

And other extinguishers. Also manual and automatic fire-fighting systems.

There's a PYRENE for Every Fire Hazard

PYRENE MANUFACTURING COMPANY
583 Belmont Avenue Newark 8, New Jersey
Affiliated with C-O-Two Fire Equipment Co.



The Case of the Deadly Staircase

What was the sinister secret of this particular staircase? Why did it pick girls only for its victims?

It looked innocent enough — a perfectly ordinary staircase in a well-maintained department store. But the record was clear — a long succession of falls, bruises, broken legs and cracked collarbones sustained by the store's salesgirls on that one flight of stairs.

Time after time, the girls were cautioned to be more careful. The store's safety committee examined the stairs again and again, but could find no explanation. As the Company carrying the store's insurance, Ætna was concerned by the problem, and an Ætna Loss Prevention Engineer was assigned to the case.

Experienced in eliminating both human and mechanical causes of accidents, he went over the staircase carefully. The lighting was good. The treads and handrails seemed perfect. The landing was wide and covered with a non-slip surface.

Then he noticed a full-length mirror on the landing where the salesgirls could check their grooming after leaving a nearby washroom. "Let's get rid of that mirror," he said. "The ladies won't like it, but maybe they'll watch their feet instead of their faces." Simple — but it worked. The falls stopped. The case was solved.

You probably will never face just this problem. But the chances are there will be many occasions when the broad experience, specialized training and objective viewpoint of Ætna Loss Prevention Engineers can prove invaluable to you.

Expert in mechanical, construction, chemical, electrical and automotive safety, 225 Ætna Engineers have built an enviable record of spotting and eliminating out-of-the-ordinary hazards. But they don't stop there. They reduce human *causes* of accidents, too, with an outstandingly successful arsenal of educational aids — including full-color motion pictures, posters, manuals, booklets, action displays and demonstrations.

If your company is insured by the Ætna, these trained men will gladly work with you on any loss prevention problem. You will find their experience helpful not only in reducing accidents and lowering insurance costs but also in increasing production.

ÆTNA CASUALTY AND SURETY COMPANY

The Ætna Life Affiliated Companies write practically every form of insurance and bonding protection

LIFE AND CASUALTY
Ætna Life Insurance Company
Ætna Casualty and Surety Company

FIRE AND MARINE
Automobile Insurance Company
Standard Fire Insurance Company

Hartford 15 Connecticut

for long periods of time. This is due not just to luck, but to an effective organization of employees for fire safety. Such an organization is a necessity in wartime.

One of the elements of a fire-safe plant in peacetime is the setting up of a good organization within the plant to deal with the fire situations which inevitably occur from day to day. It is the plant manager's responsibility to assign a plant fire protection officer and set up an organization appropriate to the needs of the plant.

In a small shop, the manager looks after this operation himself. He is his own fire protection officer. His fire organization may consist of his master mechanic by day and his watchman by night. This is often sufficient, particularly if the plant is sprinklered and there is standard central station supervision of the sprinkler system and the watchman.

In the larger plant, the fire protection officer may be the fire chief or he may have a fire chief under him. In general, the duties of a plant fire protection man would be to: (a) select, instruct, and supervise the fire watchman (b) arrange a suitable routine for the maintenance of plant fire protection, including periodic inspections, (c) organize a plant fire brigade according to the needs of the plant, (d) train and drill members of the fire brigade, and (e) work out fire fighting plans in cooperation with department heads within the plant and with the public fire department, if any.

In wartime there are two services, additional to the above, which must be considered. Both of these exist in some plants in peacetime, but in wartime they assume special importance.

The first of these is an organization of first aid fire fighters. These fire fighters would not necessarily be members of a plant-wide fire brigade. They would be employees who report to their own department managers and they would, for the most part, be available to fight small fires and perform other functions within their respective departments or tenant areas.

The wartime name for such personnel was "fire guards" to distinguish them from the members of plant fire brigades or members

of public fire departments. The fire guards, however, should be set up so that they can take care of small fires within their own sphere of action in their own particular department of a plant, or their particular area in a building in which they are tenants. In England during the war, such fire guards repeatedly saved important properties at times when the regular fire fighting forces were busy elsewhere.

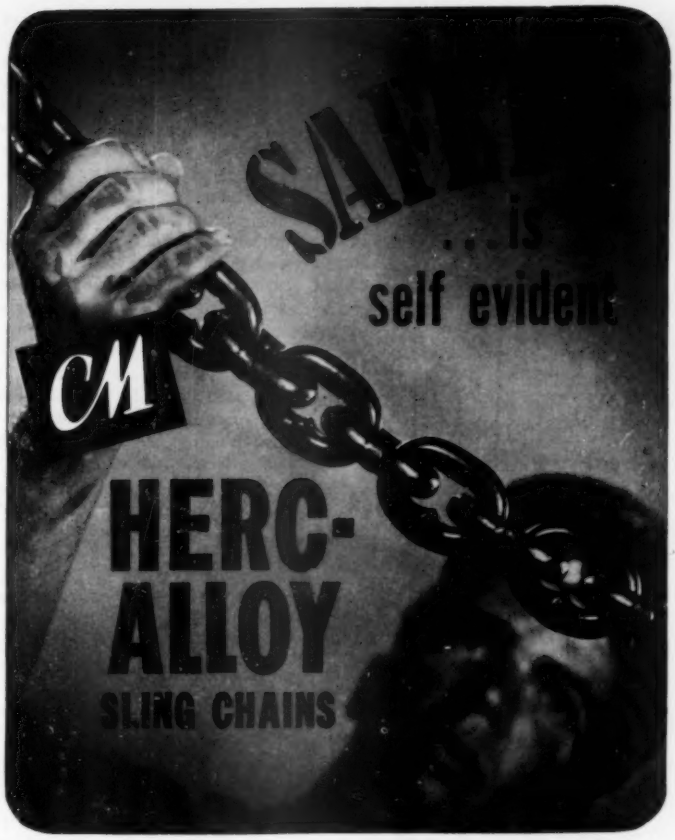
In certain industrial plants, as in the clothing industry and other industries where there are individual rooms in which a large number of people are working, they are familiar with exit drills by means of which people can be moved out of the working areas promptly in case of fire. A scheme of evacuation, which might be undertaken during wartime, will require a warden service. The warden service appropriate in an industrial plant is substantially the same sort of organization as would be set up to handle an exit drill scheme.

It is obvious that the warden service must be separate from the fire guard service, because the personnel assigned to warden duty (having to do with the evacuation of employees) cannot at the same time be fighting small fires as fire guards. The best scheme, I believe, is to set up at least three organizations within the plant: (a) the fire protection officer or fire chief, who has charge of the fire brigade, general maintenance and fire inspection, (b) the fire guard service and (c) a warden service for making exit arrangements. The fire chief can be made responsible for the fire guard service in some plants, but as a rule the warden service and fire guard service would follow the departmental organization of the plant.

For a further discussion of plant organization see a 25-cent pamphlet published by the National Fire Protection Association, *Employee Organization for Fire Safety*. There is also available from NFPA *The Industrial Fire Brigade Training Manual*, $1.50.

Bomb Shelters

There are some special problems which might be worth brief treatment. In a lot of plants they are wondering if they should build bomb shelters. This matter was



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- ***Every* CM HERC-ALLOY Sling Chain is alloy steel throughout...links, rings, hooks. There is only one grade... *the best.***
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discussed at a recent meeting of the NFPA Committee on Civil Fire Defense and the conclusion reached was that bomb shelters should not be recommended until the possibility of attack on any individual plant had been much more clearly defined than it was possible to define it now. There are certain areas of buildings which are safer than others and each plant should study the construction of its buildings to see where those safest areas are. These might be tagged as possible locations for refuge in case any warning of an attack is obtained. It was pointed out, for example, that the central corridors of fire-resistive buildings are often one of the safest locations available.

The NFPA Committee on Civil Fire Defense has also pointed out that ill considered activity, such as interruption of utility services when there is an air warning, should be discouraged. Frequent alerts could cause great confusion and interruption of normal activity if measures were to involve elaborate shutting off of utility services and shutting down hazardous processes, conveyors or assembly lines.

The complications of restoring such services and operations are often considerable and might introduce a greater fire hazard than they would prevent. As a practical matter, shutdowns would be likely to extend confusion over a far greater area than any which actually would be damaged, thus increasing the effects which an enemy could cause by an attack. By threatened attacks, an enemy also could cause frequent interference with normal activity and affect industrial production.

It would be prudent for executives to examine their plant, taking stock of features which would make severe fire damage possible and taking steps to eliminate, modify, or protect such features. In general, fire safety can be improved if combustible building construction is replaced, if quick-burning materials or materials which could cause severe fires are isolated and if strong water supplies are provided for fire fighting. The situation in each plant should be studied and a scheme to obtain the greatest safety with the least interruption of production worked out.

Protection of Records

Many plants are asking about the protection of records. A part of any exit drill plan, of course, should include the placing of important records in safes, vaults, and protective record containers. Good safes and vaults are likely to give a very high measure of protection against fires which will follow an A-bomb attack.

The threat of the loss of records as one of the consequences of a war attack on an industrial plant will prompt some plants to make an exhaustive study of the whole problem of what records they keep and why they keep them. Such a classification of records is the first step in a wartime protection program for records.

In deciding where to put records, it is a good idea to keep in mind the random pattern in which bombs fall. Don't centralize all records. Wherever possible, keep duplicates at two or three separate locations. It is not necessary to send records a thousand miles away, but it would be well for points at which important records are collected to be at least 30 to 50 miles apart. There is further information on the whole problem of record protection in the consolidated reports of the NFPA Committee on the Protection of Records which are available in a 64-page pamphlet for $1.00.

In looking back at this enumeration of precautions I am impressed most by the fact that practically all of the things mentioned would be worth doing in peacetime. Furthermore, they are all things which the experienced and prudent plant executive now does as a matter of course.

Safety with High Poiish

—*From page 21*

for the corporation, to work directly with Kenneth Kroehler, vice-president in charge of manufacturing, on a new set of safety standards.

Soon they produced a new manual, introduced by a declaration of company policy that included the statement:

"Like any other company, we

are interested in production, but it must be production *with safety*."

The stated policy also declared:

"We hold our works managers directly responsible for maintaining safe working conditions and for the employment of safe operating practices. This, however, does not relieve our divisional superintendents, general foremen, foremen, safety chairmen, or any other employee of his responsibility to prevent accidents."

The manual prescribes over-all control of the safety program by a General Administrative Safety Committee, made up of top representatives of the industrial relations, production, buildings and equipment, and engineering departments.

General directions and recommendations give a complete outline of the safety program, with details of the duties of the various officials and committees in making surveys, keeping records, investigating accidents, reporting, and the like, but the policy declaration includes this statement:

"Deviation in details is satisfactory as long as the effectiveness of the program is not impaired and records are maintained."

Inter-plant competition was a direct result of the intensified safety program. In 1949, Plant 4, the upholstered goods factory in Kankakee, led all the rest with a frequency rate of 4.6, one of the nation's lowest, and Plant 3 was second. However, in 1950, Plant 3 led with a zero rate, winning the Company's traveling safety trophy, as well as a permanent award, and Plant 4 was second.

Plant 3 is still in the lead, with the highest number of man-hours without an accident, but two other plants, the new "G & L system" upholstered goods plant in Charlotte, N. C., and the dimension stock plant in Shreveport, La., also have kept their safety records clean so far this year.

The Plant 3 safety committee is headed by R. E. Johnson, personnel supervisor, and includes Wendell Gerber, plant superintendent; R. I. Beach, assistant works manager; Eddie McFarland, master mechanic and maintenance supervisor; Helen Palmer,

NEW APPROVED PUMP makes liquid handling SAFER

These new Tokheim Hand Pumps are a great boon to industrial safety. They stop wasteful dripping and slippery floors, reduce fire hazard, save on drum storage space, and eliminate accidents common to other methods of liquid transfer. Their fast, easy double-action speeds production, reduces costs. Ideal for handling many liquids. Available in hose and spout models for use with drums or underground tanks.

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picked by maker of electrical conduit boxes because of washability

A large manufacturer of electrical conduit boxes* formerly threw away all soiled work gloves. Today he reports great savings with Jomac Gloves, which are laundered over and over.

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Washable · Reversible · Flexible · Heat-resistant
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R. N., and a rotating membership of three foremen each month.

Each member of the committee is a zealous exponent of safety. Gerber goes through the plant, calling each worker by his first name and discussing safety about as much as he does production. McFarland devises and fabricates many of the intricate guards, interlocking controls and other safety devices, always certain of cooperation from Walt Schall, head of engineering and research.

Woodworking shops are pleasant places to visit as a rule, perhaps largely because of the good, clean smell of freshly-cut wood that pervades the atmosphere. That's present, too, in Plant 3, but there also is a pleasing absence of the usual clutter of wood scrap and layers of sawdust found in many shops.

One might guess that good housekeeping is one of the main factors in the safety record at Plant 3. Aisles are clearly marked by painted lines, and all materials, tools and equipment are kept well within those lines. Even on the stair landings, white painted triangles in the corners, bearing the word, "Please," discourage the careless discard of litter.

While powerful exhaust fans connected to efficient hoods suck away the sawdust at each point of operation, carrying it to batteries of cyclones on the roof, bins are kept handy to catch pieces of scrap. Bits that reach the floor are promptly swept up.

Incidentally, this trapping of sawdust and scrap pays dividends in another way, cutting power and heating costs as it is fed to the fires under the plant boilers.

Maintenance is another factor in the efficient operation that has stopped accidents for more than a year-and-a-half. One example of this is the team of carpenters assigned on a full-time basis to the job of replacing floors. While materials handling has been conveyorized to a large degree, truck traffic in the aisles is quite brisk. Keeping all factory floors in smooth, sound condition reduces trucking and tripping hazards to a minimum.

Education and training of the worker, of course, is the final test

of the safety program, as in any other plant, and here, of course, the foreman is the key man. He conducts safety inspections, investigates accidents and keeps safety educational material on the bulletin board at all times.

Plant-wide safety meetings for all employees are called on special occasion, such as the recent affair when D. L. Kroehler presented the traveling safety plaque (which last year was in the possession of Plant 4) and the cutting of the "million hours safety cake."

Proof of the sincerity of the Kroehler management in this safety effort is found in copies of the safety orders emanating from the general office. Each recommendation that involves an expenditure is followed by a definite budget authorization—quite different from some organizations that pay lip service to safety through high-sounding resolutions, then fail to implement the program and let it die aborning.

Jim Nichols, editor of *Kroehler News*, the company's employee publication, writes that generous pats on the back are deserved by Wendell Gerber and Roy Johnson of Kankakee, and by Vic Anderson of Binghamton, general safety supervisor. Having seen the result of their work, I'd second that motion—but I also would add kudos for every foreman and every worker in the plant.

You don't get that kind of record—not a single disabling injury in more than one-and-a-half million woodworking man-hours — without every member of the team believing in safety and working at it.

NSC Policy on Green Cross Use

INQUIRIES are frequently received by the National Safety Council regarding permissible uses of the "Green Cross for Safety" symbol, which is the Council's copyrighted trademark. To help answer this question for members and others in safety, here is the official Council statement covering acceptable and unacceptable uses of the symbol:

The United States Patent Office has granted to the National Safety Council, under date of May 24, 1949, an official registration of the "Green Cross for

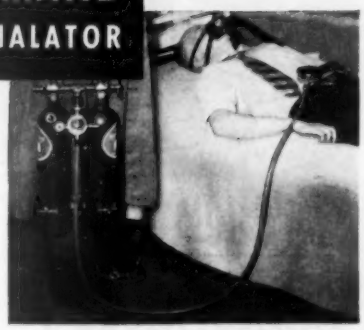
MAINTAIN AN OUTSTANDING SAFETY RECORD IN YOUR PLANT —and reduce "lost time"—

SAFETY INSPECTION AWARD

Scott DEMAND INHALATOR

EMPLOYEES requiring emergency oxygen for shock, fume inhalation, heart attacks, heat exhaustion, or respiratory difficulties can be treated simply, easily and effectively with this new Scott *Demand* Oxygen Inhalator.

Portable and easy to use, the Scott *Demand* Oxygen Inhalator provides emergency treatment in minimum time—and at minimum cost. Nominal initial cost; oxygen consumption comparatively low, due to the Scott "demand" principle which assures oxygen instantly at any rate and at any volume "demanded" by the patient.



TYPE "B" Scott *Demand* Oxygen Inhalator (above). With carrying case, with or without cylinders.

Same as above, without cylinders or carrying case.

Many other models, to suit every purpose.

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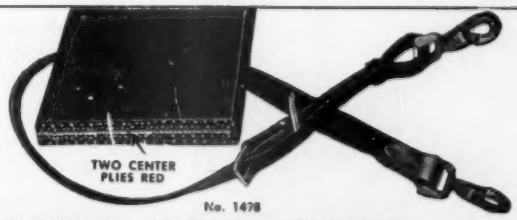

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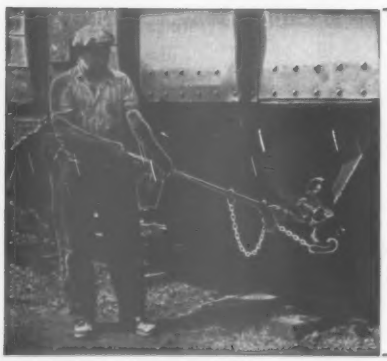


They've Been Preventing Accidents for Many Years

Dangerous old-fashioned hand foot and bar methods of closing hopper bottom car doors with latch-type locks frequently result in ruptures, strained backs and smashed fingers.

It's your responsibility to prevent these and other serious injuries by the use of Prescott Safety Tools. They also save time and make the job easier. Write today for free folder.

The Trumbull Mfg. Co.
WARREN, OHIO

Safety" symbol as a trademark for prints and publications.

The National Safety Council regularly uses this symbol on its publications, films, letterheads, and merchandise. The Council also permits others to use the symbol to indicate that the user supports accident prevention work generally and/or specific accident prevention programs of the National Safety Council.

However, the National Safety Council does not permit any individual or organization to use the "Green Cross for Safety" symbol in any way which would indicate or imply that the National Safety Council has endorsed or approved a commercial product or enterprise, either directly or indirectly.

Neither does the National Safety Council permit any individual or organization in any way to indicate, either directly or indirectly, that said individual or organization is employed by, or represents, the National Safety Council, unless such relationship has been expressly stated in writing by the Council.

As owner of the "Green Cross for Safety" symbol the National Safety Council reserves the right to decide in all cases whether or not the use of the symbol by any individual or organization is permissible.

The Council is very desirous of preventing misuse of the symbol and is glad to have its attention called to any situation where there is an apparent misunderstanding of the above stated policy.

Personals

Honored by ASA

H. E. NEWELL, assistant chief engineer, National Board of Fire Underwriters, New York, N. Y. has been awarded a certificate of service by the American Standards Association in recognition of his work in the development of American Standards. Mr. Newell has just retired as a member of the ASA Standards Council, where he represented the Fire Protection Group.

During the ceremonies at ASA headquarters on May 29, 1951, Vice-Admiral G. F. Hussey, Jr.,

WANTED

Experienced Safety Supervisor with thorough background of distribution line construction needed by private electric utility company in California. Apply in writing, giving qualifications to assume leadership of a safety and instruction program. State minimum salary expected. Address Box 419, NATIONAL SAFETY NEWS.

managing director of ASA, presented certificates to members of the Standards Council who have served more than a year.

Heads Acetylene Assn.

JAMES W. DUNHAM, vice- president of National Cylinder Gas Company, Chicago, was elected president of the International Acetylene Association at the annual business meeting held during this organization's recent Annual Convention in Montreal. Mr. Dunham had served as vice-president for 1950.

F. W. HENCH, president, American Oxygen Service Corporation, Harrison, N. J., was elected vice-president of the Association. E. V. David, assistant manager of the Technical Sales Division, Air Reduction Sales Company, New York, was re-elected secretary.

JAMES L. FIESER, for many years associated with the American Red Cross, has been appointed branch chief of Mass Care Services of the Federal Civil Defense Administration, Washington. Mr. Fieser is a former member of the Headquarters Staff of the National Safety Council and more recently has been executive director of the Japan International Christian University Foundation.

ST. LOUIS REPRESENTATION

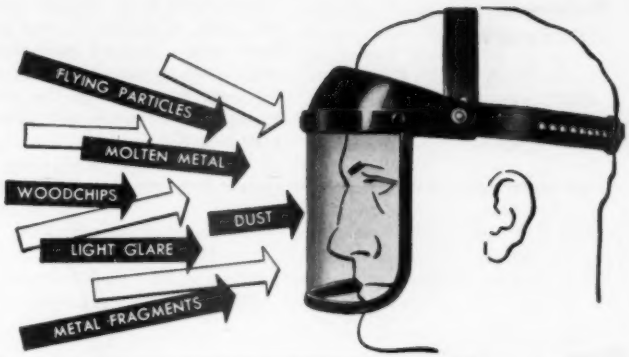
Distributors of Safety and Allied Equipment covering Saint Louis industrial trade area desire additional lines. Want nationally known products on exclusive sales basis. Have sales force with college training, coupled with vast experience Safety and Industrial Equipment Field. Address Box 418, NATIONAL SAFETY NEWS.

Obituary

BENJAMIN C. HANSON

BENJAMIN C. HANSON, retired safety director of John A. Roebling's Sons of Trenton, N. J., died recently after a short illness.

A native of Tuckerton, N. J., Mr. Hanson had been associated with Roebling for more than 30 years prior to his retirement. He was 72 years of age.



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It has shielded thousands of eyes and faces from serious injury. It's *featherlight*, easy to clean, and has replaceable visors in various lengths, in clear and in shades of green.

Ounce for ounce there's no better buy in eye protection . . . for so many industrial uses.

For Flash Welding and Metal Pouring, with visors in light, medium and dark green, .020" thick, 4", 6", and 8" deep: type J-1 shield with headrest, type C shield with elastic band in back.

For Resistance Welding, Metal Finishing, Woodworking, etc., with visors of clear plastic .020", .030", and .040" thick, 4", 6", and 8" deep: type J-1 shield with headrest, type C shield with elastic band in back.

OTHER JACKSONS SHOWN HERE:

For Gas Welding, Cutting and Brazing, with lenses in F.S. shades 3 thru 6; types W-50, LTB-50 and BX with headrests, type WR-50 with elastic band.

For Chipping and Grinding, with clear, hardened lenses: type G-50 with headrest, type GR-50 with elastic band.

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For Best Results
INSIST ON
LICHTMAN
Heat Resistant
LEATHER
For Protective Clothing

Runaround

—*From page 40*

4. Access roads and walkways.

Lars said, "You want a big piece of this project."

I shook my head. "I don't want any piece of it. But I want to know what's planned and why, and I want a chance to argue for the correction of things that are wrong while we're still in the blueprint stage."

Lars bought that, and set up an interview for me with one of the architect's men. I waited a while in his slick, glass-bricked reception room with the chrome furniture and the apparently chrome-plated receptionist. Finally my man came out, resplendent in plaid jacket and sports shirt. He had a bright smile, a good handshake.

In not more than fifteen minutes he had told me how glad, how very glad, he was that I was interested, how anxious the firm was to fully understand the client's point of view, how much he approved of accident prevention. Then he suggested that we discuss my points out on the golf course.

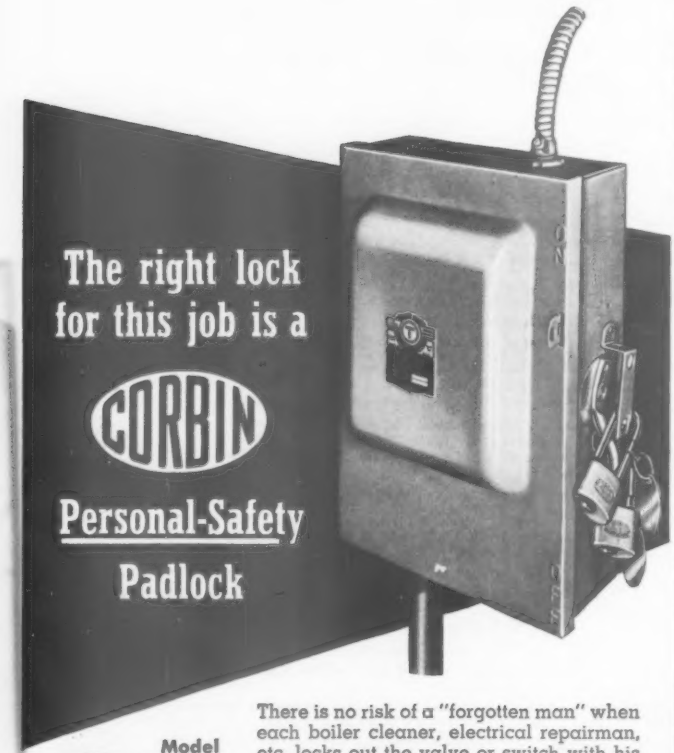
I said that it might be inconvenient to carry along a complete set of the plans and a table to spread them out at each tee. The objection apparently made him unhappy.

"Um-m," he said. "The plans. Now that's a good point, but I wonder if we ought to worry about details now. Shouldn't we two, rather, spend our time understand-

The right lock for this job is a

CORBIN

Personal-Safety Padlock



Model No. P65R

There is no risk of a "forgotten man" when each boiler cleaner, electrical repairman, etc. locks out the valve or switch with his own Corbin *Personal-Safety* Padlock.

Corbin No. P65R Padlocks are made especially for this purpose. They have a solid die cast case. The height of the shackle opening is 2¾ inches. The disc tumbler mechanism has 200 possible key changes. If desired, they can be keyed alike or master-keyed. A metal tag for employee's name or number is securely attached to the hardened-steel shackle.

We will gladly help you work out a *Personal-Safety* system based on your specific needs. For further information, without obligation, write to:

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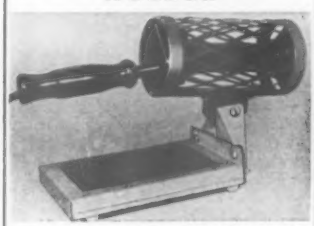
FIRST WILDER IN QUALITY

ADJUSTABLE SOLDERING IRON HOLDER



FOR *Safety* AND *Speed* IN SOLDERING

AVAILABLE WITH WIPING PAD AS SHOWN ABOVE OR WITH BRACKET FOR BENCH AND SHELF MOUNTING

FOR COMPLETE INFORMATION WRITE

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411 LEXINGTON AVENUE
BROOKLYN 16, N. Y.

ing each other on general principles — reach, shall we say, a meeting of the minds, and leave the details to the draftsmen?"

I told him I never saw a man get badly hurt by a general principle.

He thought that one over, and said, "Well, of course, there's much in what you say. Still, there are some preliminaries. I wonder if it might not be well for you to draft a memorandum for our guidance. Then, if any difficulties arise, we could call a conference and . . . "

"I'd like to see the plans," I said.

He tried to make it clear, in one and the same sentence, both that he would be delighted to have me review the plans and that it would be better if I didn't. I tried to suggest in one and the same sentence both that I admired his rhetoric and that I thought he was giving me a runaround.

After about ten minutes more of this guff, I got mad. "Where in blazes are the plans?" I said.

It then developed that he didn't know. It also developed that he was not much more than a kind of glad-hander to kiss off fretful clients, and that I wasn't going to learn anything from him.

The next guy I got hold of was very business-like, tough, a good engineering design man. When I told him what I wanted, he came right to the point.

"Look. I'm handling this project. It's been cleared with your engineering men. We're a competent architectural firm with considerable experience in industrial construction. We understand your production needs and we know how to meet them. I don't see any particular reason why we should have to spend a lot of time on details with every staff man in your organization."

I told him I didn't doubt his competence in the field of construction design, but that I considered myself responsible for a specialized problem—safety—and that I knew few architects who

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StaSafe KOOLPADS save you valuable worker time by stopping sweat *before* it has a chance to streak glasses or cause smarting eyes . . . comfortably soft sponge with adjustable headband . . . inexpensive, long-lasting!

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The Hillyard Chemical Company, pioneer manufacturers of floor treatment and maintenance products, makes this claim based on 47 years of scientific research field testing. A claim **strengthened** by the recognition and approval of flooring contractors and builders . . . **verified** by the years of CONTINUED and successful service in thousands of the nation's finest buildings.

COMPARE THESE IMPORTANT ADVANTAGES

Super SHINE-ALL
NEUTRAL CHEMICAL CLEANER

1 DISSOLVES Dirt by 100% cleansing action that emulsifies oils and greases. Its safe, gentle action is neutral and chemical . . . does a **complete** job on **any** surface.

2 ELIMINATES Rinsing. Leaves no sticky, soapy film, or whitish residue that requires waste in successive rinsings. Shortens labor-time by 1 whole process. Reduces cleaning costs up to 50%.

3 INTENSIFIES BEAUTY. Reveals colors and original finish more vividly—unclouded by dulling film. Super Shine-All cleaned floors retain natural oils—won't dry out—wear longer.

4 SAFER Underfoot. Provides a protective film that can be polished to attractive non-skid lustre. One of a few cleaners approved "anti-slip" by testing laboratories of the nation's insurance companies and approved by manufacturers of all types of floors.

WRITE for full information on Super Shine-All. The superior Hillyard cleaner. There's a Hillyard Maintaineer near you for Free advice, help with any floor problem.

. . . on your staff not your payroll

HANDLE WITH HILLYARD GARE!

HILLYARD CHEMICAL CO.
St. Joseph, Missouri, Dept. U-7
BRANCHES IN PRINCIPAL CITIES

were capable of anticipating all such problems—and further, that I knew darned well our own engineering staff couldn't anticipate all of them, which explains my presence on the Jackson-Barnes staff. I reminded him that Larson had told them to cooperate with me.

Finally he came up with his main point. "Look," he said. "We're pretty far along. We've invested a lot of time and hard thought on this job. We've complied with all building codes. I can't reopen this whole thing at this stage, to comply with your individual preferences and make a lot of expensive changes."

I told him I didn't want a lot of expensive accidents to result from bad design, and that I thought it substantially more economical to hit the problems at the present stage.

Reluctantly, he finally produced a set of plans, urging me not to be too quick to urge changes.

"A building isn't like a suit of clothes," he said. "You can't make alterations in one place without disrupting requirements elsewhere."

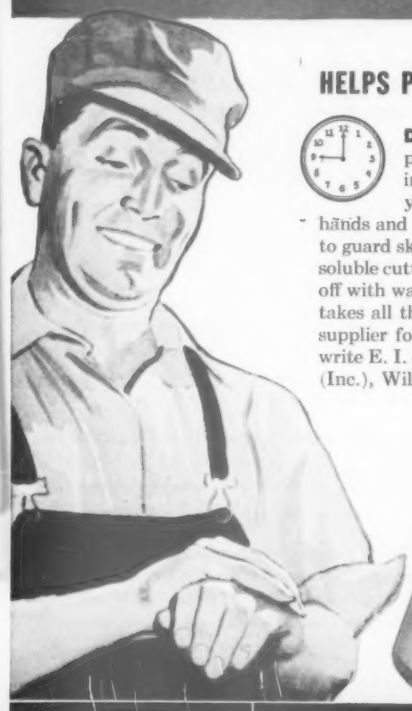
I refrained from the obvious answer that I had, however incompletely, been given some instruction in the design of structures in the course of a rather intensive engineering education, and that I had also some experience with the preliminary planning of larger structures than the one under consideration.

It might have been better for my temper if I'd let go, but instead I went quietly to work on the plans.

There was plenty to go to work on. The job was good from the point of view of production engineering—almost completely good. But I spotted one place where inadequate work space was allotted, and another where the aisleways designed for power-truck traffic were too narrow for safety.

At 5 o'clock the architect's man said "Goodbye." He looked a little

PROTECTS HANDS
against oil, grime, paint



HELPS PREVENT TIME LOSS!

Du Pont PRO-TEK hand protective cream acts like an invisible work glove. Have your workers rub it on hands and arms before starting work, to guard skin against paint, grime, insoluble cutting oils, etc. Easily washed off with water when the job is done—takes all the grime with it. Ask your supplier for Du Pont PRO-TEK. Or write E. I. du Pont de Nemours & Co. (Inc.), Wilmington 98, Delaware.

DU PONT
REG. U.S. PAT. OFF.
BETTER THINGS FOR BETTER LIVING THROUGH CHEMISTRY

PRO-TEK
HAND PROTECTIVE CREAM

Perfect Spectacles
for
General Shop Work

Here are the Sellstrom Spectacles No. 4026, especially designed for practically every type of shop work. The screen shields are an ideal safeguard, yet permit full air circulation.

The spectacles have a nickel frame, saddle nose bridge, plastic covered temples, 47 m/m drop oval (45x48 m/m) lenses. Can be furnished with our LCH 1.25 Diopter Curve or LCG 6.00 Diopter Curve XL Hardened Lenses.

Ask your dealer about these spectacles—or write us for a sample pair on memo for "on-the-job" test purposes.

sellstrom
MANUFACTURING COMPANY
More Than 200 Eye and Face Safeguards
622-F. North Aberdeen Street, Chicago 22, Ill.

pained when I said I'd be back the next morning.

In the morning I started considering the layout in terms of general plant arrangements, and I saw the most obvious of all flaws. The main employee entrance of the building was right onto our main truck drive to the foundry loading dock.

There were a few other points—not too many: spray booth details, the design of certain lighting fixtures which I knew would create difficulties in maintenance, and such trivia.

By and large, the architect's man was relieved at the shortness of my list. He accepted some of my suggestions with a fair imitation of enthusiasm. But on the employee entrance location he stuck. It would, he assured me, require laborious and expensive changes to relocate it.

I didn't waste a lot of time on him. Instead I headed back to the plant, explained the point to Larson, and then went to our engineering department.

They were unhappy. "It will cost us plenty," the chief engineer said. "We have okayed that—in fact I think we suggested the location in our rough plans. I hate to ask them to make the change."

I exploded. I pointed out that if it cost five thousand dollars worth of architectural labor to make the change, we'd be money ahead, because, sooner or later, that arrangement would kill somebody. One death claim—even one bad injury case—and we'd be out more than $5,000.

I didn't win the argument then. But I went back to Larson again, gave him the score as I saw it. He got on a telephone. In twenty minutes he had the word that the changes would be made—"Immediately, sir. . . . Of course you are right sir. . . . Just as you say, sir."

Authority is a wonderful thing. And authority working for you is just as good as authority in your own right!

This FREE Oakite Booklet

tells how to get rid of lime scale... remove slime and prevent it from fouling lines, tanks, spray jets ... clean finned coils on air washers ...wash aluminum plates and screens ... descale cold diffusers ... recondition glass filter screens.

FREE BOOKLET sent on request. Write Oakite Products, Inc., 14D Thames St., New York 6, N. Y.

SPECIALIZED INDUSTRIAL CLEANING
OAKITE
MATERIALS • METHODS • SERVICE

Technical Service Representatives Located in Principal Cities of United States and Canada

install SIGHT SAVER CLEANING STATIONS

PROMOTE SAFETY • IMPROVE MORALE INCREASE PRODUCTIVITY

Dirty eyeglasses, like dim lights and dull tools, are hazardous and inefficient. Make clean glasses a habit in your plant and office. Install SIGHT SAVER CLEANING STATIONS to dispense Sight Savers, the Dow Corning SILICONE treated tissues that are recognized around the world as the best, the easiest and the most convenient way to clean, polish and protect eyeglasses and safety goggles. Let Sight Savers wipe away the best excuse men give for not wearing safety glasses.

PUT SIGHT SAVER CLEANING STATIONS TO WORK FOR YOU

Leading Safety Supply houses in all principal cities are fully stocked with Sight Saver cleaning stations ready to serve you.

No. 60 *Black Dispenser* . . . **$2.50**
No. 61 *White Dispenser* . . . **$2.50**
No. 65 *Refill Packet containing 800 sheets* . . **$1.45**

NO MUSS • NO FUSS • NO FLUID

Attractive all-metal SIGHT SAVER cleaning stations are easy to install . . . easy to service. Fool-proof, permanently lubricated mechanism dispenses one 3 in. x 7 in. tissue at a time; each tissue scientifically treated with SILICONES made by Dow Corning, the world's first and largest producer of silicone products and silicone treated tissues.

DOW CORNING SILICONES

DOW CORNING CORPORATION MIDLAND, MICHIGAN

The *yawn* that ruined a PACKING PLANT

It happened on a weekend.

Lulled by the deceptive quiet—and the fact that he was not supervised by a DETEX GUARDSMAN Watchclock—the Watchman went to sleep.

Soon after, a man was seen running from the building. Attracted by billowing smoke, a passerby turned in an alarm. The Watchman barely escaped asphyxiation. Damage—$553.000.

To avoid disaster, make sure your Watchman is alert—especially on weekends. The GUARDSMAN, operating on continuous roll tape, is the greatest advance in Watchman supervision during the past 70 years. The Watchman knows that if he sleeps, shirks or skips rounds, the GUARDSMAN will expose him with alibi-proof evidence.

The GUARDSMAN does away with the need of a supervising employe returning to the plant Saturday and Sunday to change the clock dial. The GUARDSMAN continues to operate for as long as 96 hours, without someone having to cut the tape. Ask for descriptive folder.

FREE—a copy of "Plant Protection for National Defense"—a revised manual of instructive information to guide Watchmen, Guards and Management engaged in defense work. Send for your copy.

DETEX

WATCHMENS CLOCKS

PATROL
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GUARDSMAN

DETEX WATCHCLOCK CORPORATION
Dept. N-7
70 VARICK STREET NEW YORK 13, N. Y.
Sales and Service in All Principal Cities

Rolling Scaffolds

—From page 44

outside in office buildings, warehouses, factories, hospitals, institutions, public buildings, and other places. Cleaning, repair work, equipment installation, and painting are some of the important uses.

The aluminum alloys used in scaffolding, like those used in airplane construction, are tough and strong. The prefabricated frames, braces and platforms are interchangeable.

Types of Scaffolds

Aluminum scaffolds are of two types: sectional rolling scaffolds and sectional ladder scaffolds. The former have base dimensions of 4½ by 6 feet. Ladder scaffolds, also available with casters, are approximately 24 inches wide.

Sectional rolling scaffolds are available with inside stairway or with a vertical ladder as an integral part of the frame. Working platforms, guard rails and adjustable legs to level the scaffold on uneven ground, and ball-bearing, double-lock casters complete the assembly. Legs provide adjustments up to 18 or 24 inches.

Working height depends on the number of sections employed. In multi-section scaffolds, the lower section, including casters, is approximately 7⅓ feet from ground level to platform. Upper sections are usually 6¾ feet high, an adequate distance for headroom. Frames for the intermediate or upper sections fit over coupling pins and are secured by a hinged pin.

Guard rails, a desirable safety feature, are quickly and easily placed in position. Working heights may be increased by use of outboard support frames so that the normal safety factor is not exceeded. This requires that the height of the working platform be not more than four times the smallest base dimension.

One man can usually take care of erecting and dismantling. For transportation and storage all components lie flat and require minimum space.

Often work must be carried on during business hours and the bright, clean, finished appearance of aluminum is important when the scaffolds are used in public view.

With rolling scaffolds it is often possible to carry on maintenance work without halting normal activities. Little floor space is required and the scaffold is readily moved to keep pace with the work. It is not necessary to obstruct a large floor area with a fixed scaffold.

In some instances it is desirable to erect continuous assemblies to cover the full width of the work area and move them as a unit.

For Limited Areas

The typical ladder scaffold, 24 inches wide, is practical for use in aisles and other tight spots where elbow room is limited. An aluminum ladder scaffold rolls through a 30-inch door and will clear obstructions up to 5 feet 10 inches in height, including caster adjustment. In factories they are used to work over machines or other equipment and in stores and offices to clear desks, counters and files.

A frame 6 feet 1 inch, 24 inches wide, is the basic unit of a typical aluminum sectional ladder scaffolding. Available parts and components for making up a variety of assemblies include platforms, diagonal and horizontal braces, intermediate and extension sections and guard rails. Spans of 6, 8 and 10 feet are available.

Ladder scaffolds are built with many safety features, including extension bases, outboard safety supports, rubber-tired casters, and extension legs adjustable up to 18 or 24 inches. They are frequently joined by stages to span wider areas.

To meet the requirements of various trades or conditions, ladder sections are available in heights of 6 feet 1 inch, 5 feet 8 inches, and 4 feet. As with the stairway type scaffold, sections lie flat and take up little space for transportation or storage.

Scaffold Selection

When picking the most desirable type of scaffold for the job, it is important to compare many details. Particular attention must be given to design and manufacturing details on rigidity, stability

—To page 92

Include the missing half

and double the Scope of your Safety Program!

A PROVED PLAN

here is your missing half—

The off-the

of Your

Less than one-half a worker's day is under the control of your job safety program. The "missing half" is spent in traffic, recreation, and around his home.

Nearly 3 out of 5 worker accidents occur during this hazardous time! Your company foots the bill for a large share of loss due to these off-the-job accidents. Today's high production requirements make it even more important that man-hour loss be curbed to a minimum.

The following pages show you how to increase the scope of your safety program to include the other half of your worker's day! Do it *easily, economically*—and *effectively.* It's good, sound business THAT WILL PAY YOU PREMIUMS!

...for less than a penny can integrate half" into your safety

-Job Part Worker's Day!

His Wife and Family are Part of it, too...

Don't overlook your staunchest safety booster—the worker's wife! She's the most safety-minded person in town where her family is concerned. Show her how to avoid mishaps to her breadwinner and family—and she's on her toes every second!

She'll work for your safety program night and day—with the most loyal cooperation you can get. Include her, too . . . and you'll get complete coverage of the hazardous "missing half."

Turn the page and you'll learn how you can include the entire family in your program—keep them safety-conscious every day in the year! AND SHOW THEM HOW TO HAVE PLENTY OF FUN—AT THE SAME TIME!

a week you this important "missing program!

32nd Edition · · Best of them all!

1952 National Safety Calendar

featuring exclusive "Save-A-Life-Line" Contests that bring the worker's family right into your safety program!

National Safety Calendars are a gift the whole family will use and enjoy the year 'round! It's a natural—a home study course in safety for workers, their wives and kids. Daily safety-reminders that apply on-the-job or off-the-job. The *one* training aid you can put in their homes—that will work for you *a solid year.*

And when you figure in the success of the family "Save-A-Life-Line" Contests—you can see what a bang-up job the Calendar does! It's so easy, so simple—and jives right into your own program. *Cash prizes* for the best lines each month win the whole family over to writing safety limericks . . . they have a lot of fun . . . and think about safety at the same time! See following page for full details.

Nearly Half a Million Participants Last Year Proved This Plan

$100.00 for a LIFE LINE!
NO SMOKING
A fire-alarm fiend, Sparky Mayes,
May be found watching any big blaze.
So it's really amazing,
With all his blaze-gazing
REMEMBER—ANOTHER BIG CONTEST NEXT MONTH!
ALL SET FOR CHRISTMAS? Practically, we mean.
Then why not go after that big $100 cash prize in the "Save-a-Life Line" contest? Or one of the 32 other cash prizes.
Sit down RIGHT NOW and write a last line to the safety limerick at your left. Make it rhyme with "Mayes" and "blaze."
Write your line ON A POSTCARD and mail it—ON or AFTER November 1 and BEFORE midnight November 30—to the Calendar Contest Editor, National Safety Council, 425 North Michigan Ave., Chicago 11, Ill.
For the best line it receives each month, the National Safety Council will pay a total of $325 in cash.
FIRST PRIZE—$100. SECOND PRIZE—$50. THIRD PRIZE—$25. And THIRTY $5 prizes. Thirty-three cash prizes in all!
Anyone can enter this contest—man, woman or child—except employees of the National Safety Council and their families.
For complete rules of this "Save-a-Life Line" Contest, see the back of the December page of this calendar. Be sure to follow them!
BE READY FOR EMERGENCIES
TO SAVE property and life—perhaps your own . . .
BE PREPARED—
FIRST—TO PREVENT FIRES.
SECOND—TO DO the RIGHT THINGS in case of fire.
To prevent fires AT WORK:
• Obey no-smoking rules. Whenever you smoke, be sure to extinguish match and cigarette butt.
• Use safety containers for handling flammable liquids.
• Don't use flammable liquids near open flames.
• Put rubbish and oily waste in covered metal cans.
• Report immediately any electrical defects.
• Know ALL the plant's fire prevention rules.
And in case it does happen:
• Know how and where to report the fire.
• Know the location of fire exits and of fire fighting equipment.
• Know which type of fire extinguisher to use for each type of fire.
• Think fast but keep cool! Follow plant organization.
• • •
To prevent fires AT HOME:
• Be sure matches and cigarettes are extinguished before they are discarded. Put lighted cigarettes nowhere except in your mouth or an ash tray!
• Watch closely for frayed cords, loose connections and unusual actions of electric fixtures and appliances. Have repairs done by professionals.
• Keep furnace, stoves, flues and chimney repaired.
• Keep soot cleaned out during firing season.
• Insulate any woodwork near furnace, stoves or flues.
• Don't overheat in cold weather.
• Never use kerosene to start or rekindle a fire.
• Train children to respect the proper use of fire.
And in case it does happen:
• Keep your head so you can think fast and act right.
• Know how to turn in an alarm—if there is time—and be sure to give your address.
• If it's past the stage of a small blaze you can put out, get out with others as fast as possible, and don't linger to gather up belongings.
• • •
To be prepared for a fire emergency in ANY building: Know the nearest regular and emergency exits . . . Take no unreasoning rash chances to leave if in a room. You may be safer to wait for aid . . . If you must leave through heavy smoke, stay close to the floor . . . Keep your head.
PANIC IS FIRE'S RIGHT HAND!
THIS MONTH'S PICTURE
How's this for a fine crew of volunteer fire fighters? Any blaze that would be silly enough to flare up in the face of such sturdy opposition would be snuffed out without even one healthy swallo. And the best part of it is that, along with having lots of fun, these youngsters are
THE ENTIRE FAMILY TAKES PART

"Save-a-Life-Line"

CASH PRIZE CONTEST

EACH MONTH MAKES SAFETY A FAMILY AFFAIR!

Everyone from Junior to Grandma joins in the fun to win cash prize money each month! They just sit down . . . complete a last line to rhyme with the safety limerick . . . and submit their entries. That's all there is to it . . . easy, simple and effective. Keeps the whole family thinking about safety . . . helping to make your safety program an even bigger success.

You Receive Complete Tie-in Materials to Promote the Calendar Contest in the Plant . . . . and at Home

POSTERS
MATS
LETTERS
STREAMERS
BULLETINS
PATTERN ENTRY FORMS

PLUS-

. . . everything you need to keep the contests fresh in your employee's minds . . . interesting and successful.

the finest Good Will Christmas Gift Your Plant Can Give To Its Employees!

What better way to say "Merry Christmas and Happy New Year" than the big, beautiful, full-color National Safety Calendar?

Here is something your workers and their families will use every day of the year . . . something they need. And along with it . . . you're giving them the opportunity to win cash prizes and have fun the whole family can enjoy! Not the usual Christmas Card of momentary effect—BUT lasting year 'round cheer. It's your opportunity to score in employee relations—and put safety across in a big way, too.

Take advantage of the special discount offer on the next page—send in your reservation, now!

Act Now!

3% DISCOUNT

send your order in today!

You will receive a 3% discount on the prices given below, provided imprinting instructions are furnished by July 31, 1951.

PRICE SCHEDULE

(F.O.B. CHICAGO)

Quantity	To MEMBERS		To NON-MEMBERS	
	Packed Flat In Bulk	In Mailing Tubes	Packed Flat In Bulk	In Mailing Tubes
1 to 9	55¢ each	58¢ each	65¢ each	68¢ each
10 to 199	53¢ each	56¢ each	60¢ each	63¢ each
200 to 999	44¢ each	47¢ each	50¢ each	53¢ each
1,000 to 9,999	40¢ each	43¢ each	43¢ each	46¢ each
10,000 to 19,999	36¢ each	39¢ each	39¢ each	42¢ each
20,000 or more	34¢ each	37¢ each	37¢ each	40¢ each

Note:—Orders for 200 or more calendars imprinted without extra charge. Imprinting charges on orders for less than 200, $6.00.

INCLUDE THE MISSING HALF—DOUBLE THE SCOPE OF YOUR SAFETY PROGRAM!

Rolling Scaffolds

—From page 82

and endurance. All coped joints should be fully and smoothly welded.

Socket clearances should be adequate for easy assembly. Dents and burrs result in a poor fit. On the other hand, clearances must be small enough to provide rigidity when the scaffold is put together. All mechanisms, including springs and pins on braces, should be readily available for inspection and cleaning.

For satisfactory results with aluminum rolling and ladder scaffolds, these suggestions are offered:

1. Limit scaffold height to a ratio consistent with the base area, as prescribed by the standard "four to one" safety rule.

2. Be careful in outdoor work that scaffolds cannot be struck by trucks or moving equipment.

3. Eliminate overloads which can easily cause extra labor, accidents and needless expense.

4. Check to see that your scaffold is rated by Underwriters' Laboratories, Inc.

5. Always use guard rails.

6. Workmen should never stay on tower while it is in motion.

7. All casters should be locked when scaffold is in use.

The commonsense way to
CLEAR AND PREVENT
ATHLETE'S FOOT
in Shower Rooms

SAFE, NON-POISONOUS SKIN TOUGHENING TO COUNTERACT THE SOFTENING EFFECTS OF WEARING SHOES

NEAT, CLEAN ODORLESS, PLEASANT TO USE

BATHERS LIKE ONOX
IT MAKES THE FEET FEEL FINE

Recent research has upset former theories regarding the control of Athlete's Foot. ONOX is revolutionary. A safe, non-poisonous skin toughener does the work. You may test it under any conditions you choose to impose and without obligation. For example:

● *We will ship prepaid, your trial order for any amount of ONOX and equipment. Use it for 60 days. If at the end of that time ONOX has not proved itself to your complete satisfaction you owe us nothing.*

We would like to send you the simple details of the ONOX method now used by hundreds of institutions—coast to coast.

ONOX, INC., DEPT. L, 121 SECOND STREET, SAN FRANCISCO 5, CALIF.
WAREHOUSES: BROOKLYN, CLEVELAND, NEW ORLEANS, LOS ANGELES

Important: Did you note the "Radical reversal of medical teaching" in TIME Magazine? A report based on 10 years observation by 91 U. S. Skin Specialists calls Foot Baths "Futile"—"Illogical"—"Potentially harmful." Onox on the other hand is a safe, non-poisonous skin toughener. IT STEPS UP RESISTANCE . . . INSTEAD OF BREAKING IT DOWN! Try the Onox way. You'll be surprised!

(Copy of TIME article sent on request)

"Look, Boss, our chocolate is too gummy . . . We need a better temperature recording system." (Courtesy Wheelco Instruments Co.)

Operating an unguarded press is an invitation to tragedy, suffering and expense.

JUNKIN automatic safety guards for presses are helping thousands of enthusiastic users set new safety records . . . higher production schedules. JUNKIN guards operate automatically from foot pedal, fall by gravity to bolster plate. Press can't operate until guard is in position.

Write for this New Bulletin

Junkin Safety Appliance Co., Inc.
930 W. Hill Street
Louisville, Kentucky

JUNKIN SAFETY GUARD

THE HONOR ROLL

Records of operation exceeding 500,000 man-hours, or one year, if exposure exceeds 300,000 man-hours, without a disabling (lost-time) injury are invited.

Virginia Bridge Co.

Templet Dept., Birmingham, Ala.—April 1, 1925 to April 1, 1951; 420,000 man-hours; continuing.

B. F. Goodrich Chemical Co.

Louisville Geon Plant, Louisville, Ky.—September 4, 1950 to April 30, 1951; 1,150,455 man-hours; continuing.

Line Material Co.

Zanesville, Ohio—January 1, 1951 to April 30, 1951; 517,619 man-hours; continuing.

United States Steel Co.

Maintenance Dept., Electric Shop, Clairton Works—1,568,839 man-hours as of May, 1951; continuing.

Maintenance Dept., Clairton Works—March 7, 1951 to April 21, 1951; 535,000 man-hours; continuing.

River Transportation Division, Clairton Works—April 6, 1950 to April 20, 1951; 583,402 man-hours; continuing.

National Distillers Products Corp.

Old Taylor Plant, Frankfort Division, Frankfort, Ky.—October 30, 1947 to April 8, 1951; 1,521,348 man-hours; continuing.

Blending Plant, Cincinnati Division, Cincinnati, Ohio—March 26, 1949 to March 14, 1951; 1,381,728 man-hours.

W. & A. Gilbey Plant, Cincinnati Division, Cincinnati, Ohio—January 12, 1949 to March 31, 1951; 801,166 man-hours; continuing.

Dixie Mercerizing Co.

Chattanooga, Tenn.—April 19, 1950 to April 19, 1951; 1,057,870 man-hours; continuing.

Westinghouse Electric Corp.

Baltimore Works—May 5, 1949 to June 7, 1950; 1,481,368 man-hours.

Bellefontaine Works—Septem-

MJCO 1-inch Adhesive Compress brings you all these features

★ OFF-CENTER OPENING . . . with turned-back tabs to protect sterile pad when soiled hands open it.

LONGER . . . the longest made . . . 3½" . . . fits around and overlaps big knuckles. Won't peel up on ends when hands get wet or sweaty!

NON-RAVEL PAD . . . no loose threads in wound area . . . looks neat, stays neat!

And it's a *large* six-layer gauze pad, a full ⅞" x 1¾" . . . all gauze, no cotton filler! Get this complete protection . . . ask for No. 100A. Write for samples.

Medical Supply Company

1025-7 W. State St., Rockford, Illinois

ber 17, 1949 to February 16, 1950 1,088,718 man-hours.

Bryant Electric Co.—February 24, 1950 to July 4, 1950; 1,012,634 man-hours.

Lansdowne Works—August 22, 1949 to January 23, 1951; 2,378,765 man-hours.

Lima Works—May 30, 1950 to August 31, 1950; 1,499,631 man-hours.

Meadville Works—July 7, 1948 to August 24, 1950; 1,533,204 man-hours.

Newark Works—December 28, 1949 to June 11, 1950; 2,295,088 man-hours. June 13, 1950 to January 28, 1951; 3,748,625 man-hours.

Owensboro Works—January 31, 1950 to March 31, 1951; 669,931 man-hours.

Sharon Works—January 27, 1950 to March 20, 1950; 2,097,590 man-hours. June 1, 1950 to August 6, 1950; 2,532,695 man-hours. November 30, 1950 to January 15, 1951; 1,856,419 man-hours.

South Philadelphia Works—September 2, 1950 to November 1, 1950; 2,528,416 man-hours.

Sunbury Works—April 18, 1947 to March 31, 1951; 8,076,862 man-hours; continuing.

Southeastern Dist. Mfg. & Repair—January 7, 1950 to March 31, 1951; 704,043 man-hours; continuing.

New England Dist. Mfg. & Repair—December 23, 1949 to March 31, 1951; 706,691 man-hours; continuing.

Northwestern Dist. Mfg. & Repair—June 23, 1950 to January 29, 1951; 659,604 man-hours.

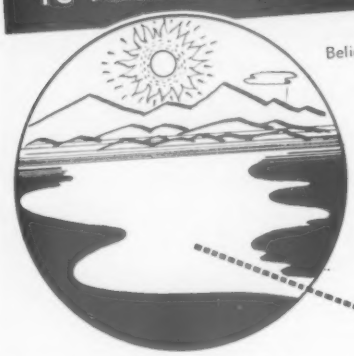
Eastern Dist. Mfg. & Repair—January 10, 1950 to March 31, 1951; 1,727,938 man-hours; continuing.

Southwestern Dist. Mfg. & Repair—April 14, 1949 to August 27, 1950; 974,763 man-hours.

Sunnyvale Mfg. & Repair—July 13, 1950 to November 19, 1950; 1,410,541 man-hours.

HAVE YOU HEARD ABOUT THE

AMAZING *New* PLEASANT WAY TO FOOT HEALTH IN SHOWER ROOMS?



Believe it or not . . .

DEATH VALLEY'S ALKALI FLATS

Reveal the secret of Nature's own Method

FOAM-X MIRACLE MATS

Here plant life is destroyed by Salt Action (osmosis) . . . and the Athlete's Foot fungus is plant life.

Everybody would enjoy foot health if we all went barefooted each day on a Salt Flat.

IN THE SAME WAY the mineral salts in non-toxic Foam-X soon restore shoe-softened skin to its original toughness and **STOP ATHLETE'S FOOT!**

Bring the Alkali Flats to your shower rooms . . .

"A GODSEND FOR SORE BLISTERED FEET" says a Dallas, Texas user.

TRY IT AND SEE FOR YOURSELF. **Pay nothing unless 100% satisfied!**

FOAM-X RELIEVES FOOT FATIGUE

Stops Costly Layoffs --- Steps Up Efficiency

Pays For Itself Many Times Over!

Send full details on 30 day "Proof or No Pay Test."

Name.....

Address.....

City..... Zone..... State.....

How many use showers..... IN CANADA WRITE TO: SAFETY SUPPLY CO., TORONTO 1

FOAM-X COMPANY · 334-A WEST ALAMAR · SANTA BARBARA, CALIFORNIA

for SAFE WALKING

NOFALS

SLIP-RESISTANT FLOOR-FINISH

FOR USE IN

- **HOSPITALS**
- **HOMES FOR THE AGED**

• *WHEREVER SAFETY UNDERFOOT IS VITAL!*

NOFALS provides a lustrous, satiny finish to linoleum, cork, rubber, mastic or sealed wood flooring — WHILE GUARDING AGAINST SLIPS AND FALLS. Beauty-plus-safety is the big feature of this special water emulsion floor finish. *Actually improves in slip resistance under traffic!*

NOFALS is easy to apply; won't jell, whiten out or attract moisture. Ask your DOLGE SERVICE MAN to demonstrate—or write for folder NFWJ251.

dependable

DOLGE

WESTPORT, CONNECTICUT

Marathon Paper Mills of Canada Ltd.
Mill Division, Marathon, Ontario — December 2, 1950 to March 25, 1951; 510,868 man-hours.

Ferro Enamel Corp.
Cleveland, Ohio—624,000 man-hours as of May 10, 1951; continuing.

Republic Steel Corp.
Coke Plant, Youngstown, Ohio —1,000,622 man-hours as of April 11, 1951; continuing.

Consolidated Western Steel Corp.
Phoenix, Ariz. Plant — July, 1949 to March, 1951; 310,336 man-hours.

It often shows a fine command of language to say nothing.

In filling out an application for a rather hazardous job, a man puzzled a long time over this question: "Person to notify in case of accident?" Finally he wrote: "Anybody in sight."

COMING EVENTS

In the Field of Safety

Sept. 6-7, York Harbor, Me.
Twenty-fourth Annual Maine Safety Conference. Arthur F. Minchin, director, Industrial Safety Division, Department of Labor and Industry, Augusta, Me.

Sept. 18-20, Cleveland
Ohio State Safety Conference (Hotel Carter). Carl L. Smith, Executive Vice-President, Ohio State Safety Council, 2073 E. 9th St., Cleveland 15.

Oct. 8-12, Chicago
Thirty-ninth National Safety Congress and Exposition. (Stevens Hotel). R. L. Forney, general secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11.

Oct. 29-Nov. 2, San Francisco
American Public Health Assn., 79th Annual Meeting. Dr. Reginald M. Atwater, executive secretary, APHA, 1790 Broadway, New York.

YOUR EMPLOYEES NEED SALT
TO COMBAT HEAT FATIGUE
FURNISH THEM

PEP-UP
ENTERIC COATED SALT TABLETS

- PEP-UP are the original patented ENTERIC COATED salt tablets.
- Will not cause nausea or salt sickness.
- Coating is moisture proof and will not attract rodents or bugs. Can be stored for long periods safely.
- Meet government specifications for Type III Class B Enteric coated salt tablets.

EXPENDABLE DISPENSERS—PEP-UP TABLETS come to you in sanitary factory sealed dispensers at no extra cost. Throw away dispensers when empty—Hang up a new one. Save the cost of purchasing, cleaning and refilling dispensers.

UNITED STATES SAFETY SERVICE CO
KANSAS CITY 6, MO. - BRANCHES IN PRINCIPAL INDUSTRIAL CITIES

In Canada — PARMELEE LTD. — Toronto

a Safe-Hi Construction Belt

"cushions the fall"

When a falling man hits the end of his lifeline, unless there is a means of absorbing the sudden shock, the jolt can cause serious injury or death even if the belt and lifeline hold.

A SAFE-HI Shock Absorber Belt is the answer to this problem.

The UNOLYN Shock Absorber in SAFE-HI Construction Belts elongates permanently under loading. It s-p-r-e-a-d-s the shock, stops the man promptly but holds the impact within safe limits for man, belt and lifeline.

Safe-Hi Shock Absorber Belt for window cleaners...saves the man by saving the building anchor.

See your safety dealer or write

SPECIFY Safe-Hi PRODUCTS

ROSE MFG. CO.
1731 Arapahoe St., Denver, Colo.
• SAFETY BELTS • LADDER SHOES
• POLE GRIPS • WALL GRIPS • CHISEL GRIPS
• LIFELINES & LANYARDS

Calendar Contest Winners for May

First prize in the National Safety Council's Safety Calendar Contest goes this month to Miss Marie E. Kramer of Baltimore. Miss Kramer is a registered nurse. The theme of this contest was clean up for safety. Miss Smith's limerick was adjudged best of all those submitted. It was:

If he tripped where a toy shouldn't be.

Second prize went to Alec V. Drachenfels of Pacific Grove, Calif., for this limerick:

When he fell for his own BULL-oney.

Third prize was awarded to Mrs. Louis E. Palffy of Minneapolis for the following limerick:

Now a nurse keeps him neat as can be.

Thirty $5.00 awards were issued to:

Mrs. S. H. Pruitt, Oglethorpe, Ga.

C. O. Duer, Wayne Knitting Mills, Ft. Wayne, Ind.

Mrs. Helen Haupt, Baltimore, Md.

William J. Burke, Isaacson Iron Works, Seattle, Wash.

Harry Powell, Tucson, Ariz.

N. B. Nelson, New Philadelphia, Ohio.

Mrs. Ethel Mallory, Rockaway Park, N. Y.

Mrs. M. M. Levin, Milwaukee, Wis.

L. A. Hughes, Tupelo, Miss.

Mrs. Esther Koch, Azalea, Ore.

Mrs. Hazel Frazier, Electro Metallurgical Division, Union Carbide and Carbon Corp., Ashtabula, Ohio.

Mrs. Grace K. Cole, Teacher, Philadelphia, Pa.

Mrs. Gladys F. Kneece, Johnston Mill Inc., Monetta, S. C.

Mrs. C. P. Neis, Coffeyville, Kan.

Mrs. J. H. Johnson, Chemainus, B. C., Canada.

Miss Myra I. Moody, Moscow, Ida.

Mrs. William Mason, Hamilton, Ont., Canada.

Mrs. James W. Faris, Jefferson City, Mo.

Bill Green, Universal-Cyclops Steel Corp., Canonsburg, Pa.

Nell King, Hartford, Conn.

Mrs. Henry C. Thweatt, Shreveport, La.

Barbara Olson, Everett, Wash.

Jess Massingale, Crest States Corp., Shelbyville, Ind.

Muriel Deitch, Panama Line, New York, N. Y.

Mrs. Marjorie Truitt, U. S. Customs Service, Norfolk, Va.

Irene Gerhart, Santa Ana, Calif.

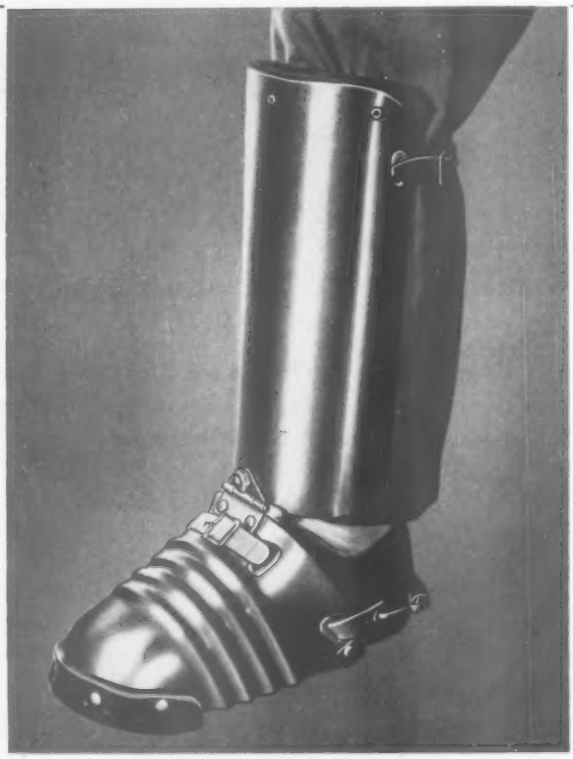
Quentin R. Stropp, Garrison, Minn.

Mrs. H. C. Hieber, Columbia, Ky.

Christian Bartenbach, New York Transit System, Floral Park, N. Y.

Mrs. John Witmer, Dallas, Tex.

People, like boats, toot loudest when they're in a fog.



"SANKEY" COMBINATION SHIN-FOOT GUARD

This guard provides protection for TOE, FOOT, INSTEP, and SHIN. It is constructed of aluminum alloy, weighs 34 oz. each, has an overall height of 15 in. from the floor. These guards are being used by adz operators, cattle herders and shacklers, pneumatic tool operators and handlers of piled scrap, steel, pigs, billets, etc.

Right — IMPROVED FOOT GUARD

For additional information about "SANKEY" Foot, Toe and Leg Protective Guards please write the ELLWOOD SAFETY APPLIANCE CO., 219 Sixth St., Ellwood City, Pa.

ELLWOOD SAFETY APPLIANCE CO.

ACME

. . . the Gas Mask that Checks "HUFF and PUFF"

You can wear the Acme Full-Vision Mask two or three times as long as others without worrying about "huff and puff." An exclusive Acme feature, the Dead Air Check Valve, actually limits the amount of carbon dioxide the wearer rebreathes and thus helps to check breathing difficulties at their source.

This is another Acme innovation that proves that protection can be comfortable.

Write for the complete story on Acme Gas Masks for all occupational hazards.

ACME PROTECTION EQUIPMENT CO.

3037 WEST LAKE STREET
CHICAGO 12, ILLINOIS

Five Minute Safety Talks

Five Minute Safety Talks for Foremen, Book 2, is expected to be in stock this month. The first volume of brief talks on subjects of general industrial interest, issued in 1950, proved so popular that it was decided to prepare a second book.

Book 2 contains 52 safety talks, one for each week of the year, listed under the following classications: General, Personal Behavior, First Aid and Health, Personal Protective Equipment, Housekeeping, Fire, Material Handling and Storage, Falls, Machinery, Chemicals and Solvents, and Hand and Power Tools.

Although these talks cover much the same subjects as were treated in the 1950 volume, they present a fresh approach and different point of view which users will find stimulating. Many of the talks were written by safety engineers in industry.

Since the talks, which are illustrated, are intended as a source of reference for foremen when they prepare to hold brief on-the-job safety meetings, the volume includes a page of explanation on how to use the talks. Each one takes no longer than five minutes to present.

Member prices: 1 to 9 copies, $1.70 each; 10 to 99, $1.50 each; 100 to 999, $1.45 each; 1000 to 4999, $1.35 each.

Sample Permits

Safety directors and supervisors planning permit systems for their companies can find helpful guidance in a page of permits used by the Sun Oil Company, Marcus Hook Refinery, recently reproduced and now available in limited supply at Council headquarters.

The permits shown are Chemical Work Permit, Fire Permit, Permit To Open Equipment, Permit for Men To Enter, and Excavation Permit.

Copies are free on request to the Council's Library.

Safety Instruction Cards

Two more Safety Instruction Cards, the Council's pocket-sized reminder cards for employees, have been completed. No. 673, a new card, gives rules for handling pulpstones. No. 304, a revision, is concerned with *Cutting Oils and Compounds—Skin Troubles.*

Member prices: 1 to 9 copies, 5 cents each; 10 to 99, 2½ cents each; 100 to 999, 1-9/10 cents each; 1000 to 4999, 1-7/10 cents each. For prices of larger quantities and for samples, write the Council's Membership Department.

Air Transport Data Sheet

Data Sheet D-A. 3, *Air Terminal Vehicle Traffic Safety Guide*, prepared by the Airport Committee of the Air Transport Section of the Council, has been completed and is now in stock. This new data sheet, a guide to the formation of rules governing vehicular traffic on public areas at air terminals, defines terms and then lists and discusses traffic rules and driving rules.

It will be particularly valuable to airport management people, air line operations supervisory and management personnel, aircraft manufacturers with plant facilities located on public airports, and certain charter operators.

This data sheet is not scheduled for publication in the NATIONAL SAFETY NEWS.

Member prices: 1 to 9 copies, 17 cents each; 10 to 99, 13 cents each; 100 to 999, 8 cents each; 1000 to 4999, 7 cents each.

Cover of recently published Safetygraph, No. 19, which is concerned with the problem of static generated by flammable liquids flowing from a nozzle or pipe. The Safetygraph, 18 by 24 inches, is designed for employee training.

"Noise in Industry"

Noise in Industry, two-page reprint of the report of a conference held during the Tenth Annual Congress on Industrial Health of the American Medical Association in New York, February 20, 1950, is now available as Safety Reprint General No. 20. It will be of interest to safety directors throughout industry, wherever noise constitutes a hazard to the health of employees.

Member prices: 1 to 9 copies, 17 cents each; 10 to 99, 13 cents each; 100 to 999, 8 cents each; 1000 to 4999, 7 cents each.

Forest Conservation

A nationwide campaign to prevent forest fires and to conserve valuable timberlands that are critical for national defense has been launched by Philip Morris & Co. in cooperation with the United States Forest Service, the State Foresters, conservation groups and the lumber industry.

One hundred thousand posters will be placed by these groups in and around all national and state parks, forest preserves and other timberland areas. In addition, the campaign will be backed up by radio and television.

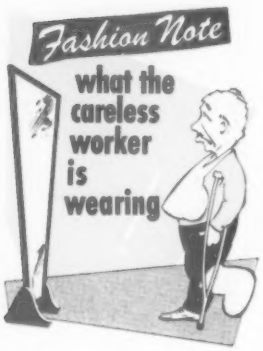
Distribution of the posters constitutes the fourth step of the Philip Morris fire prevention program, which was started several years ago. First step was a specially designed card for hotel rooms, warning against the hazards of smoking in bed. Later, fire prevention stickers were placed on 125,000 cigarette vending machines, and for the third phase of the program, especially designed fire prevention cards for use in hospitals were distributed.

SAFETY POSTERS

IMPORTANT

ALL miniatures shown on these pages are of NEW posters — produced for the first time this month. Excepting the Jumbo poster (below, left) all will be available during the remainder of 1951. Those displayed on the following pages in black and white are actually printed in two or more colors. We suggest you refer to this copy of the News in making monthly selections.

In addition to these new posters, you will find a great variety of subjects among the 744 posters illustrated in the 1951 Directory of Occupational Posters, and which will also be in stock throughout 1951. For a proven plan of selecting your posters objectively, refer to pages 4 and 5 in the Directory—a copy of which has been sent to all National Safety Council members. Additional copies are available at 50 cents each—write Membership Dept., N.S.C.



9356-C 25x38

Above new "C" poster, issued monthly, is indicative of the other two color posters —shown in black and white on the following pages and in the 1951 Poster Directory.

The Jumbo poster, issued monthly, is designed for outdoor use and is available to members on annual subscription but is not stocked. Its actual size is 9' 11" by 11' 8".

9167-A 8½x11½

This new four color poster is illustrative of the 72 four color posters shown in the 1951 Poster Directory.

Electrotypes of poster miniatures on this page are not available, nor can payroll inserts be supplied.

Posters below are printed in two or more colors
(Available only in sizes indicated)

NATIONAL SAFETY COUNCIL

9345-A **8½x11½**

NATIONAL SAFETY COUNCIL

9353-A **8½x11½**

NATIONAL SAFETY COUNCIL

9284-A **8½x11½**

NATIONAL SAFETY COUNCIL

9250-B **17x23**

NATIONAL SAFETY COUNCIL

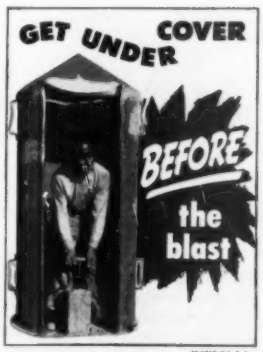
9108-A **8½x11½**

NATIONAL SAFETY COUNCIL

9306-B **17x23**

NATIONAL SAFETY COUNCIL

9136-B **17x23**



NATIONAL SAFETY COUNCIL

9251-A **8½x11½**

NATIONAL SAFETY COUNCIL

9291-B **17x23**

Electrotypes or payroll inserts can be furnished on all poster illustrations shown above.

Posters below are printed in two or more colors
(Available only in sizes indicated)

NATIONAL SAFETY COUNCIL

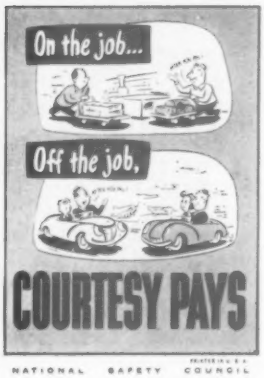
9352-A **8½x11½**

NATIONAL SAFETY COUNCIL

9344-A **8½x11½**

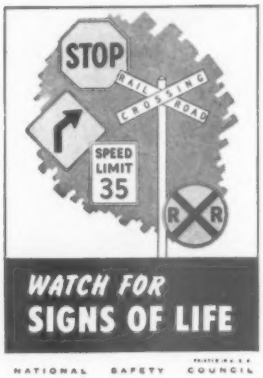
NATIONAL SAFETY COUNCIL

9277-A **8½x11½**



NATIONAL SAFETY COUNCIL

9282-B **17x23**



NATIONAL SAFETY COUNCIL

T-9298-B **17x23**

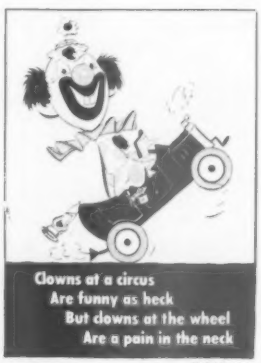
make
safe
left turns
AT THIS POINT you should have..
1 Positioned your vehicle
2 Slowed down gradually
3 Signalled your turn
4 Re-checked your rear-view mirrors
FROM THIS POINT you must..
1 Check your clearance of pedestrians and other vehicles
2 Wait for opposing traffic to clear
3 Proceed with caution

NATIONAL SAFETY COUNCIL

V-9337-B **17x23**

NATIONAL SAFETY COUNCIL

V-9336-A **8½x11½**



NATIONAL SAFETY COUNCIL

V-9338-A **8½x11½**

WHAT'S YOUR DRIVING I.Q.?
DO YOU always look before leaving curb?
DO YOU give the right of way to pedestrians?
DO YOU really stop at stop signs?
DO YOU use extra caution at railroad crossings?
STOP
RAIL ROAD CROSSING

NATIONAL SAFETY COUNCIL

V-9335-B **17x23**

Electrotypes or payroll inserts can be furnished on all poster illustrations shown above.

Electroplating

—From page 33

are more insoluble and permit less penetration of the irritant material into the tissue.

18. Irritation of the upper respiratory tract may likewise occur as a result of exposure to chromic acid derivatives, to other acid mists, or to alkaline mists. Rhinitis, inflammation of the nasal mucosa, may be generalized; or, following repeated inhalation of chromic acid derivatives or fluorides, the nasal septum may ulcerate. Perforation of the septum is the end stage of the inflammatory reaction.

19. Folliculitis, inflammation of the hair follicles, and pyoderma, or pus formation in the skin, are sometimes seen after exposure to the alkaline cyanides. These lesions are indicated by a zone of inflammation or redness for several millimeters surrounding hair follicles. The areas of inflammation may run together, giving the appearance of a generalized dermatitis. Folliculitis and dermatitis similar in appearance may result from contact with petroleum oils and their derivatives.

20. The hair follicles may show evidence of necrosis, which is probably a reaction to alkali. The follicular character serves to differentiate cyanide dermatitis from the generalized irritation and redness seen after exposure to ordinary alkalies.

21. Redness, dryness, and chapping of the skin frequently follow exposures to alkalies, acids, water, soap, or solvents. Alkalies and soaps remove fats from the skin, soften the horny layer, destroy the protective acid mantle, and break down the skin barriers that normally maintain a healthy epidermis.

22. Typical contact dermatitis or eczematous dermatitis may develop if exposure to irritants is prolonged of if the skin is more than usually sensitive to the action of these irritants. Chromic acid derivatives are primary irritants. They may also act as sensitizers of the skin.

the *New* SAF-I-SPEC
SAFETY SPECTACLE

Full Protection from Impact Hazards

- Smart Appearance
- Instant Snap-on Temples
- Genuine Comfort
- Rugged—Tough
- Optically Correct
- Low Cost
- Made of Optilite

Write for literature and prices

UNITED STATES SAFETY SERVICE CO.
KANSAS CITY 6, MO. • BRANCHES IN PRINCIPAL INDUSTRIAL CITIES
In Canada — PARMELEE LTD., 11 Watkinson Ave. — Toronto 9

a favorite THROUGHOUT INDUSTRY

IN EVERY PHASE of industry Halsey Taylor Cooler Fountains are chalking up an enviable record for performance. Why not keep production at the peak with plenty of cool water throughout the plant. Let Halsey Taylor coolers provide health-safe refreshment for every worker, plus maximum utility and economy of maintenance. Write.

The Halsey W. Taylor Co.
Warren, Ohio

HALSEY TAYLOR
Fountains and Coolers

SEND FOR CATALOG

SPECIAL DUTY SAFETY LIGHTS by JUSTRITE!

JUSTRITE

SAFETY EXTENSION LIGHT

FOR SAFE INSPECTION OF BARRELS STORAGE TANKS PIPES - BOILERS ROUGH CASTINGS MOTORS

Model 1727-S

Three cell operation. Flexible extension light. Retains curvature as you set it. Non-breakable clear plastic globe. Shock proof and spark proof. Choice of 15" or 30" extensions for inspection of all inaccessible areas.

FOUR CELL SAFETY HEADLIGHT

Model 1904-S

Case clips to belt and is connected to rubber padded headband with 48" plastic weatherproof cord. 1,500 foot beam. Underwriters Lab. approved for Class 1, Group D hazardous locations.

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JUSTRITE MANUFACTURING CO.

FREE CATALOG
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2061 N. Southport Ave.
CHICAGO 14, ILL.

SAFETY EQUIPMENT FOR ALL INDUSTRIES

IPCO M&M RAIL CLAMPS

Used for car stops, on loading platforms, temporary sidings, cars on grades and traveling cranes.

THIS
The Dangerous Way

OR THIS
THE SAFE WAY

Used and recommended by leading Steel Companies, Manufacturing Plants, Mines, Grain Elevators, Cement Plants and Quarries.

Write for Bulletin K-71

IPCO
Safety Equipment for all Industries
INDUSTRIAL PRODUCTS COMPANY
2850 N. FOURTH STREET • PHILADELPHIA 33, PA.

23. Systemic intoxications are rare in plating operations but may result from undue exposure to any of the heavy metals, such as lead, cadmium, arsenic, zinc, and antimony.

24. Potentially serious lead exposures may be present in maintenance work such as the soldering of lead tanks. Many lead plating operations are enclosed, and the electrode efficiencies of acid lead baths are sufficiently high that appreciable atmospheric contamination is unlikely. If lead plating processes are performed under other conditions, the possibility of excessive exposure should be considered.

25. When cadmium, arsenic, zinc, antimony, or other toxic metals are plated, the operations should be carefully observed and investigated. However, harmful exposures to these metals are more frequently associated with the inhalation of dust or fumes than with the inhalation of mists such as may be evolved in plating operations. Unless electrode efficiencies are low or unusual circumstances prevail, significant evolution of these metals from electroplating processes will not be expected.

26. Cyanide intoxication is the greatest potential hazard in electroplating operations. Cyanide

HYDROFLUORIC ACID

Hydrofluoric acid vapors have a sharp pungent odor and immediately attack the skin and mucous membranes. These vapors and solutions of the acid cause painful burns that heal slowly.

1. **Wear goggles, rubber gloves, a rubber helmet, rubber apron or trousers, and rubber boots.**
2. **Where large quantities of the acid are handled, wear a suitable gas mask.**
3. **Inspect your gloves carefully. Make sure they are clean, and free from the smallest hole.**
4. **If you think any part of your body has come in contact with the acid, or a solution of it, flush the affected parts with large quantities of water.**
5. **Report even the slightest contact immediately to your supervisor and get medical treatment promptly.**

SAFETY INSTRUCTION CARD No. 514
National Safety Council

Figure 3. NSC Safety Instruction Card lists safe practices for employees.

baths are used for the plating of copper, zinc, brass, bronze, cadmium, silver, and gold. The alkalinity of these cyanide baths ordinarily prevents excessive liberation of hydrogen cyanide, but alkaline cyanide mist may be evolved because of gassing due to low electrode efficiency.

27. Hydrogen cyanide gas is liberated from cyanide salts in the presence of acid. This gas is highly toxic by inhalation and may be absorbed through the skin, but skin absorption is not an appreciable factor in exposures associated with electroplating.

28. Chlor-acne and even liver injury may be caused by prolonged or repeated contact with chlorinated naphthalene or chlorinated diphenyl. These materials have been used as "stopping off" materials and "masking agents" in plating processes.

29. There is general awareness of the explosion hazard associated with perchloric acid when it is used in electroplating operations. Less violent but more frequent are the small scale hydrogen explosions which sometimes occur when a tank is first opened after standing for some time or when hydrogen becomes entrapped in a layer of foam on the bath. These explosions are usually not serious but may cause minor burns from splashing of material, or injury because of the startling noise.

Safeguards for Personnel

30. Pre-employment and periodic physical examinations should be made. Selection of workers is usually not practicable, and little can be done to anticipate trouble. Brunettes with oily skin usually react less readily to alkaline solutions than do blondes or people with dry skin. Measurement of the alkali-neutralizing ability of the skin may be of some importance, but this practice is time-consuming for routine use.

31. Impervious gloves, bibs, aprons, and in some instances boots may need to be provided to prevent contact of the materials with the skin. Goggles or suitable eyeshields to prevent splashing into the eyes are of utmost im-

I KNOW I'M SAFE...
with WOODEN SOLES!
• Heat resistant wooden soles
• Strong steel toe
FOR THE FACTORY...
No. 504 S
Wear a Reece "Strong Toe." Comfortable leather uppers. High, roomy steel toe protector, heat-resistant wooden sole. Have comfort-safe feet at work in oil refineries, foundries, steel mills, factories.
...FOR THE FOUNDRY
The Reece "Hot Foot" sandals. Protect your feet in furnace and coke oven rooms. Straps on over your own shoes. Heat resistant wooden sole, strong galvanized iron counter, flexible hinge toe. Cannot slip.
BE SAFE THE REECE WAY . . . WITH A REECE "HOT FOOT" SANDAL!
No. 300
There is no substitute for Reece Wooden soles
REECE WOODEN SOLE SHOE CO.
Dept. NS. 7
Columbus, Nebraska

Group of RUEMELIN Fume Collectors Keeps Shop Clear of Welding Fumes

This well ventilated welding department is typical of hundreds of similar installations. Welding operators appreciate smoke and gas-free atmosphere. Thousands in service. Many repeat orders. Collecting fumes at the source with local exhaust hoods has proven most practical in operation. Write for Bulletin 37-D describing all types of Ruemelin Fume Collectors.

RUEMELIN MFG. CO.
MFRS. & ENGRS. • SAND BLAST & DUST COLLECTING EQUIPMENT
3885 NORTH PALMER STREET • MILWAUKEE 12, WISCONSIN, U. S. A.

Modernize with
MAGCOA Magnesium
DOCKBOARDS
and cut materials handling costs!

- ¼ THE WEIGHT OF STEEL of comparable size and strength
- Easy, safe, fast to handle
- Designed like a bridge for structural dependability
- Quarter round safety curbs
- Exclusive, built-in hand holds

Magcoa Dockboards made of magnesium, can be handled by one man without the aid of truck, chain or hoist. They're easier to approach and drive onto . . . rounded and tapered ends of safety curbs offer maximum turning radius. Magcoa Dockboards are built like a bridge with reinforcing floor members and all-welded construction.

They offer maximum safety and strength with minimum weight . . . in any size and any capacity to suit your special needs.

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MAGNESIUM COMPANY of AMERICA • *East Chicago, Indiana*

Sizes 3 feet to 16 feet in height (measured from ground to platform). Standard rubber safety shoes at no extra cost.

For Safety's Sake Use

DAYTON SAFETY LADDERS

Maintenance men everywhere rely on Dayton Safety Ladders for maximum safety and convenience. Daytons are constructed of tested airplane spruce and reinforced with rigid steel supports to give great strength and lightness of weight.

Handrails of steel guard the large roomy platform for added safety. Half of platform can be raised to form an extra step, when needed. These famous ladders can be set up instantly, are easy to carry and fold compactly for storing. Automatic locking feature insures safety while ladder is in use.

Write today for Bulletin No. D-8

DAYTON SAFETY LADDER CO.
2339 GILBERT AVE. CINCINNATI, OHIO
In Canada—Safety Supply Company—Toronto

portance. Protective equipment should be cleaned frequently. Cleaning of gloves or boots is particularly important if the insides have become contaminated.

32. *Eye bath.* Eyes splashed with irritants should be immediately washed with a gentle stream of water. The flushing should be continued for several minutes, and should be followed immediately by medical attention.

33. *Emergency showers.* In case of excessive exposure of the skin to irritant materials, the exposed area should be flushed with plenty of water immediately. If a person has scratches or abrasions on his hands, it is advisable for him to see a physician at the earliest signs of inflammatory reaction (redness, swelling, soreness, or pus).

34. Identifying signs should be posted on all tanks containing hazardous material. Safety instructions should specify necessary precautions such as washing the hands before eating.

35. Food should not be stored or eaten in the plating area.

36. Multiple rinses should be provided between acid and cyanide in the plating cycle. Equipment should be designed so that cyanide cannot be discharged into a sump or sewer containing acid rinse water.

37. Cyanide acids and other chemicals should be stored so that they will not come in contact with materials that may cause fires or dangerous gases.

38. Where feasible, less toxic materials should be used. For instance, lacquers and mechanical devices have been used to supplant chlorinated naphthalene for stop-off processes. Substitution is often the simplest means of controlling a harmful exposure.

39. Guardrails or tops of tanks should extend at least 30 inches above walkways to prevent personnel from falling into hot or toxic tanks.

40. Either main supply valves or individual tank steam supply valves should be so located that they can be turned off without need for the operator to approach

closely a tank that is boiling over. This precaution is particularly necessary on tanks which tend to foam excessively on boiling.

41. It should be mandatory that stable platforms be placed over hot or toxic tanks before maintenance or other personnel are permitted to work above the tanks.

42. Conditions of exposures in plating operations are controllable, and the means for control are well known. However, a control program and its continuous application are often found lacking, especially in small plating establishments.

Ventilation Practices

43. In spite of the fact that many tanks in the electroplating process are operated substantially above room temperature, it is not considered good practice to use canopy or overhead exhaust hoods for such operations. Overhead hoods are likely to draw contaminants through the breathing zone, and if they must clear mechanical hoists, they may be too high above the tanks to be effective. Exhaust openings along the tank edges, or at least along the side opposite the worker's usual station, are preferred.

44. An important consideration in selection of the proper ventilation rate for electroplating is the electrode efficiency. The efficiency of current utilization determines the amount of gas evolution, which in turn determines the amount of mist generation at the liquid surface.

45. *Exhaust air volumes required:* The required rate of ventilation for open top tanks exhausted laterally is given by the equation:

$$cfm = (\text{airflow rate})\ L\ W$$

in which cfm is the total volume of air flow in cubic feet per minute, and L and W are the length and width of the tank. A general guide to minimum air flow rates is suggested in the table. It is assumed that at least one side of the longer dimension is used for exhaust. See Table I.

45 a. In certain cases where tanks are baffled or partially cov-

STOP ACCIDENTS
with BRADY SAFETY SIGNS

Here's an AMAZING BRAND NEW SAFETY SIGN that will be welcomed by Safety Men! Brady Safety Signs stick to wood, glass, metal, concrete, etc. without moistening. May be applied to any clean surface in a jiffy. No screws, nails, bolts or skilled help necessary. All you do is peel from card, apply where wanted and the sign is up to stay.

Brady Safety Signs are made of durable cotton cloth, Silicone Coated to resist dirt, grime and moisture. CONFORM TO ASA Standard Z35.1-41. Select your requirements from a complete catalog of standard safety messages. Cost only a few cents per sign. Immediate delivery. Specials made to order.

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MANUFACTURERS OF SELF-STICKING PRODUCTS
PIPE MARKERS · SAFETY SIGNS · PRINTED "SCOTCH-TAPE" · MASKS & STENCILS
W. H. BRADY COMPANY
1631 E. SPRING STREET • CHIPPEWA FALLS, WIS.

be fresh stay fresh

wear a
DUPOR No. 40
the Respirator that is U.S.B. of M. Approved for Type A Dusts

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ered, lower rates of ventilation may be satisfactory.

46. The air velocity into slots or openings located at the edges of plating tanks is determined from the data in the table together with the width and length of the openings.

47. Slot velocity is not the primary criterion of tank ventilation performance. It is of use, however, in routine tests of performance.

48. The minimum practical slot velocity for tank ventilation is about 1000 linear feet per minute when a single duct connection is used with the slot extending around the tank. Lower velocities will give uniform distribution of exhaust only when several duct connections can be made to the exhaust manifold or draft box.

49. The maximum practical slot velocity is about 300 linear feet per minute, so far as power conservation and minimum entrainment of mists or droplets are concerned. Slot width and length should be selected to give a velocity within these limits.

50. The lower edge of exhaust slots should be at least 4 inches above the level of the bath to prevent entrainment of droplets in the air stream.

51. Rigid control of air currents over chromic acid tanks is needed largely because of the especially low efficiency of the chrome plating process, which ranges between 5 and 15 per cent.

52. Air agitation of plating solutions is likely to produce higher concentrations of mist at the liquid surface, and may as a result increase ventilation requirements from 25 to 50 per cent.

53. Air jets directed horizontally may be used to carry the mist toward exhaust slots, provided that the slots are wide and the exhaust air volume is high enough to capture all secondary air entrained by the jets as well as to maintain air movement from the room toward the tank. Thus the blowing or primary air stream volume should be not more than about one-fourth of the exhaust air volume.

54. Plastic chips in the form of tubes, rods, spheres, or flat plates have been used in some plants as a floating blanket on the surface of plating solutions. The blanket of chips may be from 1 to 4 inches deep according to the degree of mist trapping desired. The tendency of conveyorized plating installations to drag the chips toward one end of the tanks has discouraged their use in some production shops.

55. Plastic chips will reduce the quality of mist escaping to the atmosphere and will conserve chromic acid solution. Their use does not eliminate the necessity for good ventilation, and it is not yet considered good practice to reduce the quantity of local exhaust when chips are floated on the surface. The fact that the exhaust system will carry away less acid mist when chips are used is considered to be the principal advantage so far as the ventilating equipment is concerned.

56. *Wetting agents:* The foam blanket created by some wetting agents used in plating solutions has a tendency to trap the hydrogen and oxygen gases released at the electrodes, sometimes to the extent that the gas mixture will explode when sparks are generated at electrical contact points. For this reason it may be unwise to use minimum local exhaust ventilation rates when certain foaming agents are used. However, added materials that do not produce a foam blanket, but which minimize the escape of droplets at the liquid surface, may warrant the use of minimum ventilation rates.

57. *Protection against corrosion:* Air handling equipment exposed to corrosive mists or vapors can be protected to some extent against rapid deterioration by numerous coating substances. Asphaltic materials are favored by the majority of sheet metal concerns. Nommetallic ducts can be used to advantage, particularly in underground conduits. Selection of materials will depend on local practices, preferences, and cost.

58. *Replacement of exhaust air:* Enough air must be supplied to the workroom to prevent an air-

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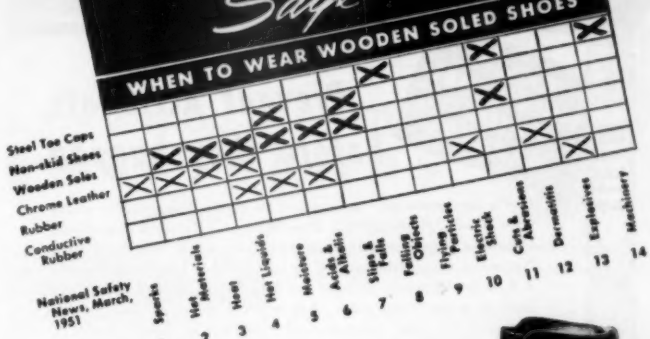

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bound condition, so that exhaust systems can operate as designed. The quantity of such air supplied mechanically may be less than the total volume of air exhaust from a plating department, if the difference can be drawn from adjacent areas without creating an air-bound condition elsewhere or without drawing dirt into the plating department. The velocity and direction of the air supply must not interfere with the performance of the exhaust system. Open windows near plating tanks are frequently the source of interfering of chilling drafts.

59. In some cases unheated or uncooled make-up air from outdoors can be brought in directly over tanks to minimize the quantity of heated or refrigerated indoor air removed by exhaust hoods or slots. This method is possible only where such untreated make-up air does not pass through the environment of workers, as for example, in the ventilation of an enclosure around automatic plating systems.

60. *Maintenance and testing of ventilation equipment:* Ventilating equipment deteriorates rapidly and should have frequent periodic attention from the maintenance department. Management is demanding better maintenance because of the high cost of replacing exhaust ducts and fans. If diligent maintenance has not been the rule, a new program of clean-up and repair often produces surprising improvement in the control of air contaminants.

61. When satisfactory conditions have been established by a new exhaust system, the air flow should be noted and used as a basis for future checks. Periodic tests should be made to determine the cfm and the uniformity of air flow along the tank and the concentration of air contaminants. After a prolonged shutdown, the duct system should be inspected for evidence of corrosion and the air flow should be rechecked.

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ACKNOWLEDGMENT

The original draft of this data sheet was prepared by E. E. Dart, M.D., Oakland, California, who wrote the section on health hazards, and W. N. Witheridge, ventilation consultant, General Motors Corporation, who wrote the section on ventilation. Coordinated by the Health Maintenance Committee of the Automotive and Machine Shop Section, National Safety Council, under the chairmanship of Frank Patty, industrial hygiene consultant, General Motors Corporation, the draft was sent out for ballot and prepared for publication under the supervision of Arthur S. Kelly, staff representative, Automotive and Machine Shop Section. The data sheet was reviewed by the Safe Practices Conference Committee and approved by the Industrial Conference of the Council.

Handling Materials

—*From page 25*

safely and without endangering operators of machines. They should be wide enough also to permit employees to move about freely while handling materials in and out of aisle racks, bins or piles and still allow passage of loaded vehicles.

Machines should be located so they can be operated with minimum exposure of workers to traffic. Machines should also be placed so as to avoid the hazard of flying particles to traffic in the aisles. Aisles and unloading areas should be kept clearly marked, as with white or yellow stripes on the floor.

Important provisions in laying out aisles include:

1. Where possible, aisles should be for one-way traffic. They should be at least two feet wider than the widest vehicle to be accommodated.

2. Aisles used for two-way traffic should be at least three feet wider than the combined width of the two widest vehicles.

3. Pedestrian traffic should be separated from vehicular traffic as much as possible. When both types of traffic in the same aisle are unavoidable, provision must be made in the width of the aisle where pedestrians can step out of the way of vehicles.

4. Layout should be based on continuous movement of materials in one direction to avoid cross traffic in the aisles.

5. Aisles leading to sprinkler valves and fire-extinguishing equipment should be kept clear of fixed obstructions.

Ramps. To avoid bottlenecks, a ramp should be as wide as the aisle leading to it. The slope should not exceed 15 degrees; certainly never more than 20 degrees. Preferably aisle and ramp should be in a straight line. Cross aisles should be avoided at top and bottom of inclines.

Provisions for width of aisles apply equally to ramps. Bumpers or curbs should be provided along the sides.

4. Overhead Clearances

Vertical clearances of overhead obstructions and equipment above aisles, working areas, and stairs should provide not less than 6½ feet, and preferably 7 feet, of headroom. These obstructions are usually stair structures, protruding beams, equipment supports, unit heaters, pipe lines, electrical wiring, and lighting fixtures. All vertical clearings should be carefully studied from elevation drawings, and their exact location shown on the layout.

Where it is impracticable to secure adequate headroom, overhead obstructions should be indicated on the plans. Such obstructions can then be made safer by distinctive warning markings, such as by coating them with contrasting paint, or padding. Piping and conduits in particularly dangerous locations can be protected by guards of heavy steel plate. In any event, these obstructions should be located in positions where they will not be struck by power-operated equipment.

Headroom above fixed working platforms, catwalks, walkways, balconies, and galleries should be at least 6½ feet from any overhead fixed obstruction or overhead moving equipment and materials. Overhead platforms in particular should be checked for clearance with cranes, lorries, and monorail loads which may pass close enough to strike workers on the platforms.

Sprinkler heads should be allowed a clearance of not less than 18 inches above the highest piled materials. The effectiveness of these spray jets in case of fire may be greatly reduced by piling material closer to them.

Crane Clearances. For overhead cranes, a vertical clearance of at least 24 inches should be allowed between the highest points of the

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cranes and any trestles or other obstructions above the crane. The 24-inch clearance should also be allowed between any part of the crane and the nearest wall, column, or fixed obstruction.

Crane-supporting structures and columns should be inspected periodically for corrosion. Also requiring scheduled inspection are the foundations, ladders, runways, walkways, railings, and beam alignment.

Footwalks along the entire length of the crane runway should have a vertical clearance of at least 6½ feet between the floor of the walk and the overhead trusses or other fixed obstructions.

Overhead Conveyors. Monorails and other overhead conveyors should have a vertical clearance of at least 6½ feet from the floor. When these conveyor systems are adjacent to or pass over working areas, aisles, or passageways, protective guards should be installed and provisions made for the clearance of six feet six inches from the floor to these overhead guards. Such guards are designed to catch any load of material that may fall off the conveyors. They should follow the conveyor dips down to an elevation of not more than four feet from the floor and still permit operations to be performed at the work stations serviced by these dips.

5. Storage

From the time raw materials are unloaded at the receiving dock until the finished products are loaded for outbound shipment, materials are handled in and out of storage several times. Following are the successive steps in handling:

1. Piled on material handling equipment at receiving dock.
2. Conveyed to stock room.
3. Unloaded and placed in storage.
4. Withdrawn from storage and piled on material-handling equipment.
5. Stored in transit as work in process.
6. After processing and assembly, material is placed in finished-product storage.
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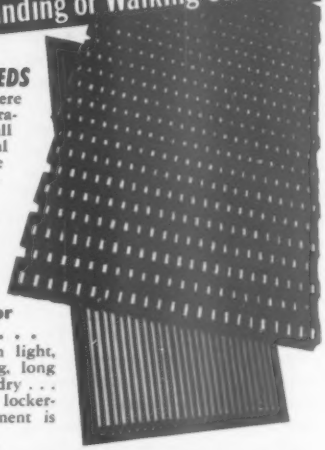

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equipment and shop facilities. Inadequate space and facilities for storage increases the number of handlings in and out of storage, lead to overloaded floors, and contribute to poor housekeeping and fire hazards.

Careful pre-planning assures adequate space for storage of raw materials, work in process, finished products, supplies, tools, dies, and idle machinery and equipment.

Many materials may be explosive, flammable, corrosive, or perishable. In most cases, safety codes for the handling and storage of these materials have been developed and made available in authoritative books and pamphlets.

Representative of special handling provisions frequently encountered, and the safety measures recommended in each case, are the following five categories:

1. *Boxes and Cartons.* In storing wire-bound shooks and box shooks, piles should be tied to prevent toppling. A good method of storing is to pile them on skids.

Carton containers should be stored on platforms, skids, or pallets to protect them against moisture, and thus protect the piles against collapsing because of wet cartons at the bottom. The maximum height of piles is regulated by the load which the sides of the bottom cartons will support without crushing.

2. *Barrels and Kegs.* These may be piled on their sides in pyramid form, or laid on their sides on special racks. When barrels and kegs are piled on end, each tier should be separated by planks laid on top of each supporting tier.

3. *Bagged Material.* Piles of bagged material should be crosstied, and mouths of bags should face the inside of the piles. The pile should be stepped back one row when it reaches five feet, and an additional row for each additional three feet of height.

4. *Piping and Bar Stock* place a heavy load on the floor, and the location selected for the storage rack must have adequate floor-load capacity. Because of the hazard of passers-by while this stock is being withdrawn from the rack, it is preferable to avoid locating the front of the racks on a main aisle.

The racks should be constructed with a slight decline toward the back so stock cannot roll out toward the front side without actually being withdrawn.

5. *Lumber* in outdoor storage should be on well-drained, firm ground, to prevent the lumber pile from shifting or listing. The tie pieces in the pile should be cut flush with the pile, and not allowed to extend into walkways. Where mechanical pilers are used, the maximum safe height for the lumber pile is generally considered to be 20 feet.

6. Work-stations

Enough space should be provided around a machine to accommodate the machine overhang, free movement of the operator, temporary storage of material in process, tool rack, workbench, conveyor station, floor skids, and other auxiliary equipment.

The entire area occupied by the machine, the operator, the auxiliary equipment, and the worked material constitutes the *work station*. The area occupied by the machine is, therefore, but a portion of the area taken up by its work station.

Each work station should be laid out in the floor plans to indicate the proper position of each piece of equipment and the overall area required by the station. These work-station layouts can then be placed in positions adjacent to each other, in proper sequence of production, in making the floor layout. From these layouts material-handling methods can be carefully predetermined for each handling.

Material received at the work station has to be stored there temporarily while the operation is performed. Provision has to be made for storing the material within easy reach of the operator if manual material-handling is to be kept at a minimum.

In planning the work-station layout, the workbench area should include provision for tools, fixtures, parts storage, and space for doing productive work. The prepositioning of tools and material for the operator is conductive to his development of a stride, or work rhythm, which lessens fatigue and consequent accident risk

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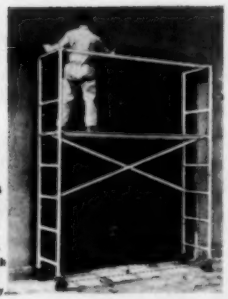

LADDER SCAFFOLDS available in 6', 8' or 10' spans. Will clear obstructions 5'10" high by 5', 7' or 9', respectively.

Definitely superior in design, workmanship, durability, strength and easy assembly, these aluminum scaffolds excel for safety, convenience and economy. Approved by Underwriters' Laboratories, Inc.

Stiffer aluminum tubing means greater rigidity and lasting service. Full welds on all caped joints.

Single-action brake positively locks caster wheels and swivel.

Legs may be adjusted without danger of tipping or upsetting.

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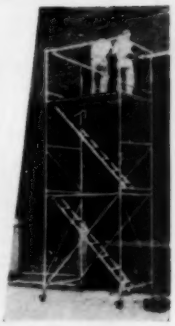

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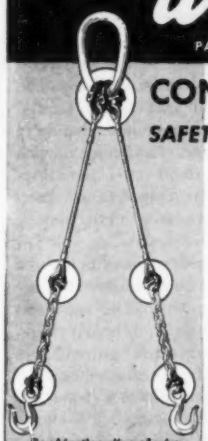

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A vastly improved connecting link that combines safety with unique simplicity in assembly. Its strength exceeds the published strength of comparable alloy chain . . . assembles rapidly without the use of special equipment.

WEDGLOK is widely used in steel mills, foundries, structural fabricating plants and other material handling operations in which on-the-spot replacement of links is important.

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by permitting a smoother sequence of motions.

Potential mechanical hazards at the point of operation can be detected and guarded against by planning or analyzing a workstation layout. Work-positioning facilities, such as automatic feed hoppers and built-in conveyor systems, to eliminate the need for hand-feeding the machines, can be considered at this stage.

7. Types of Equipment

The initial step in pre-planning safety measures and the avoidance of unnecessary exposures to injury is to trace on the layout the flow of materials throughout the plant. An analysis of this flow will reveal the material-handling hazards along the line of production and assembly, and suggest the protective steps to be taken to eliminate or guard against these hazards. To illustrate this approach in preplanning safety provisions, let us review briefly some of the main considerations to be given in the layout to the more common types of material-handling devices.

Cranes. The primary hazards encountered with all types of cranes, whether overhead, mobile, or locomotive, are: Exposure to the breaking of crane cables, failure of crane booms, and falling or swinging of loads.

A safety factor of five is usually recommended for the loads handled on cranes. For hot metal cranes the safety factor is ten. The operator's cab should be so located that signals can be seen distinctly from the floor. A warning device should be provided on all cranes where there is danger to workmen from falling or swinging loads, buckets, or booms.

Mobile cranes should not be worked on unstable ground because of the hazard of overturning. On soft ground, heavy planking or pontoons should be provided. These cranes should be kept at a safe distance from the edges of excavations.

Elevators. Accidents on elevators usually occur at the landings. These are due mostly to tripping or slipping at the car entrance or being caught by the car or by the doors, or falling down the hoistway. In eliminating the causes of tripping, slipping, and falling at the landings, most of the hazards from elevators will be removed.

Conveyors. The height of a conveyor should be placed so that the material handled can be put on the conveyor without reaching or straining. All power-driven conveyors should be equipped with machine guards or protective railings to prevent workers from being caught on moving parts, or injured by falling material.

Crossover bridges constructed with adequate rails should be provided at convenient points on power conveyors. Hinge-type gates are frequently sufficient on gravity roller conveyors. When conveyors run through tunnels or pits, sufficient clearance must be allowed along the side of the conveyor to permit safe repairs and lubrication. All screw conveyor troughs should be completely covered with sections which may be removed for inspection of the conveyor, or dislodging choked material.

Power trucks. Most of the accidents in the operation of power trucks are collisions with fixed ob-

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jects when the operator backs the truck or negotiates a sharp turn. To protect the operator from crushing injuries, all trucks should be equipped with substantial guards of sufficient height.

Regardless of the rated capacities of power trucks and tractors, the speed at which these devices can be operated and the loads which they can carry safely are dependent largely upon the physical and traffic conditions of the plant. Such conditions include aisle widths, inclines, ramps, cross traffic, fixed obstructions, density of trucking and pedestrian traffic, floor-load capacities, smoothness and types of floor surfaces, and overhead clearances.

8. Summary

Accident prevention work, to be effective, should begin at the inception of a work station. Before selecting material-handling equipment, the characteristics of the building have to be studied on the layout to avoid costly structural alterations.

Aisles should be sufficiently wide to permit the free and safe passage of trucks and workers. To avoid head-striking injuries, the layout must show the vertical clearances of all overhead obstructions. Advance layout planning removes or reduces many hazards inherent to inadequate storage areas, improper storage facilities, and inefficient material handling in stock rooms.

In pre-planning, a layout should be made of each work station, and safety factors considered at this stage. Enough space should be allowed at a work station to accommodate the machine, the operator, the auxiliary equipment, and the work material.

The initial step in pre-planning is to trace on the plant layout the flow of materials throughout the plant. An analysis of this flow will reveal the material-handling hazards along the production line, and suggest measures to take to guard against these hazards.

The plant layout is the road map for all cranes, elevators, conveyors, hand trucks, power trucks, tractors and trailers, etc. On this road map, the hazards are the mile posts of accidents waiting to happen. The removal of these hazards therefore clearly constitutes the most effective portion of the safety program for the entire plant.

Takes Over Approval Of Medical Service

The American Foundation of Occupational Health took over on May 1 the evaluation and approval of medical services in industry, which has been conducted by the American College of Surgeons for the past 20 years, according to Dr. Paul R. Hawley, Chicago, director of the College.

The Foundation is setting up a board of governors to guide them in the new project. On this board will be three representatives each from the Industrial Medical Association (formerly the American Association of Industrial Physicians and Surgeons) and from the donors to the project; two each from outstanding business executives; and one each from the American College of Surgeons, the American College of Physicians, the American Medical Association, the American Academy of Occupational Medicine, the Association of American Medical Colleges, the Association of American Schools of Public Health, and the Industrial Hygiene Foundation.

The trustees of the American Foundation of Occupational Health are the president, secretary, and managing director of the Industrial Medical Association. Dr. Edward H. Carlton, medical director of Inland Steel Company, is the immediate past president and Dr. A. G. Kammer is the new president. Dr. Arthur K. Peterson, medical director of R. R. Donnelley & Sons Company, is the secretary; and Dr. Edward C. Holmblad is managing director and treasurer. The trustees propose to continue the same type of plant evaluation and approval that the American College of Surgeons has conducted, and to expand this service if and when additional funds become available.

On its last approved list of medical services in industry, published December 31, 1950, the College includes the names of 1,459 industrial establishments—63 per cent of the 2,293 plants representing over 6,045,000 employees which had been surveyed.

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GRANTED: Everyone wants to keep America's production facilities moving at top speed to help preserve our democratic way of life.

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THEN WHY TAKE IT FOR GRANTED that a certain portion of man-hours must be sacrificed to the dispensary or the sick bed because of *exposure* to industrial hazards — and the *absenteeism* that follows?

MILBURN PLY-GARB and **PLYGLOVS** can help remove "Exposuritis" from your payroll. This durable plastic fiber woven clothing protects the worker from the most commonly used acids and solvents — gives him a comfortable, *safe* feeling — may actually increase his productivity. And this "ounce of prevention" costs much less than the "pound of cure." The **MILBURN PLY-GARB** *life*-line clothing covers the worker from top to toe.

Inquire *today* into the MILBURN METHOD for Plant Safety! A Free Survey of your industrial operation that will show how you can better your working conditions, and increase your profits.

THE MILBURN COMPANY

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Also makers of PLY CREAMS to guard against Industrial Dermatitis

Call the Milburn Jobber in your area

Janitors Study Scientific Maintenance

About 100 school janitors and building superintendents attended college during June. They met at Teachers College, Columbia University, for a special course in building and plant maintenance to learn how to do their jobs more efficiently.

The course was under the direction of Prof. Henry Linn of the college staff. It was conducted through films, demonstrations, panel discussions, and lectures. Demonstrations will be given on fire prevention, painting materials and procedures, sealing wooden floors, repair work and tools, school lighting problems, vacuum cleaning and woodwork refinishing.

Other topics considered in the course include employes relations, heating plant and engineering problems, methods of hand firing boilers, the use of color in building decoration, building in-

55 gallon Drum covers area from 350 to 450 sq. ft.

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spection and follow-up service.

Consulting specialists who lectured and conducted demonstrations were: W. E. Dillon, New York State Insurance Fund; E. E. Finn, Anthracite Institute; W. H. Garrett, Westinghouse Electric Corp.; B. J. Havens, Jr., Aetna Casualty and Surety Co.; F. J. Hunt, Hartford Steam Boiler and Inspection Insurance Co., and Richard Webber, Spencer Turbine Co.

Faber Birren, color consultant, and Dr. Leo Wolman, professor of economics at Columbia University, were also on the seminar staff.

Flashlights Operate Under Water

Virtually any flashlight can be operated successfully under water in the event of an emergency, such as a drowning, or the loss of a valuable ring, according to Gwilym F. Prideaux, miniature lamp specialist for General Electric's Lamp Department. Failure to realize this fact often means the loss of precious time in the search for the body of a drowning person, he said.

If the water is reasonably clear, it is possible for a diver to see a "considerable distance" with the aid of a five-cell flashlight. In the event the water is muddy, however, even the most powerful diving lamps, such as one of 1000-watts, will throw a beam only a few feet.

"In general, I would say that almost any of the battery-operated, portable searchlights normally carried by policemen, firemen, and utility troubleshooters would be quite satisfactory to take under water for emergency use," Mr. Prideaux said.

For best results the cover glass of the searchlight should be broken, and the bulb should not be lighted until submerged. Otherwise, the hot bulb would break upon contact with the water. Breaking the lens of a lamp of the all-glass, sealed-beam type will make the lamp inoperative under all circumstances.

A pastor says it's the woman who makes the home. Now, if there was just some way to keep her there.

A Full 5 Inches of Body Movement

With Ease and Safety

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New Shifting Tool Dee Safety Belt

Next to Safety in the experienced lineman's book, Accessibility of Tools is of first importance in selecting a Safety Belt. This new Bashlin Safety Belt is designed with sliding tool loops . . . keeps tools within easy reach. And the built-in extra safety factor saves the Safety Strap from wear. It's Safe . . . Practical . . . Comfortable . . . and you *know* it's right. It's Bashlin.

Another First

One piece aluminum sleeve adjusts from 15" to 18" in multiples of ¼". Locked in place with standard steel screws.

Comfort on the job, lightness and safety combine in Bashlin's adjustable Climber with removable gaff . . . Forged of aluminum alloy, the Bashlin Climber is lighter than conventional climbers and the *Same Strength as Equivalent Steel.* It's form fitting and has all the original Bashlin features.

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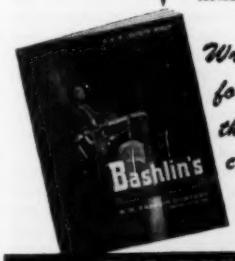
Removable gaff forged from alloy steel, features triple locking device with standard self-locking tested steel screws



Write for this catalog

W.M. BASHLIN COMPANY

GROVE CITY 3, PA.

NEW SAFETY EQUIPMENT FOR INDUSTRY

Manufacturers are invited to send in announcements of new products, or improved special features. Only items which can be considered as "news" to our readers will be published.

Crane Cab Cooler

New type equipment for air conditioning the cabs of cranes operating in high temperatures or in atmospheres contaminated by toxic and noxious gases or dusts, has been developed by Dravo Corp., Fifth and Liberty Aves., Pittsburgh 22, Pa.

With the new equipment, known as the "Split-Type Crane Cab Cooler," no ductwork is needed for installation because the cooling section is installed in the cab itself and the larger condenser section is placed outside on the crane in any convenient location.

The new split-type unit provides constant, year-round ventilation, filters the air to remove dust, dirt and fumes, cools the air in the summer and, if necessary, heats the air during the winter. The cooling section, which goes into the cab, is housed in an attractive aluminum finish cabinet. There is ample room for the unit in most crane cabs. The only connections between it and the condenser unit outside the cab are power lines and refrigerant piping.

Thermostatically controlled, the cooler will maintain a temperature of 80° to 85°F. when the outside ambient temperature is 175°. During the heating cycle, the unit keeps the temperature in the cab at 68° to 75° with an ambient temperature of Zero outside.

The unit can be installed easily and quickly on any type of crane, or in control pulpits, with a minimum of down-time. Typical installations include cranes working over or around soaking pits, open hearth furnaces, bessemer converters, stripping operations and blast furnaces.

Rubber Floor Mats

R. L. Mitchell Rubber Co., 2114 San Fernando Rd., Los Angeles 41, Calif., is marketing an interlocking rubber floor tile known as "Rubberlock" which can be assembled as a mat, runner or complete floor without cementing to concrete. The tile contains no metal, it is an ideal electrical insulator in and around electrical generating and converting equipment, or for testing departments of electrical or electronic equipment and component elements.

Since Rubberlock can be assembled to fit any shape or size in multiples of eight inches, it is readily adaptable to moving and for changes in shape to conform with conditions. It can be used as work bench coverings and also gives maximum silence in areas where this is required. The product is available in black, approximately ½ inch thick, with corrugated surface for industrial installations. It can be easily assembled on the job and to fit the job.

Magnet Chain

Two new types of ACCO Ox Bow magnet chains have just been announced by the American Chain Division, American Chain & Cable Co., Inc., York, Pa. They were designed specially for handling materials with electro-magnets. Both the 1 inch and 1¼ inch chains are made in their entirety from alloy steel and heat treated to 125,000 lbs. per square inch tensile strength.

A generous bearing surface is provided by the alloy yoke which has a welded holding stud, positioned so as to prevent excessive movement, reducing peening and battering of connections. Also provided is a zerk or Alemite flush fitting for lubrication, which reduces friction to a minimum, thereby increasing the life of chains and magnets. The reach can be increased in multiples of two links or 5½ inches on the 1 inch chain and two links or 6⅜ inches on the 1¼ inch chain.

Optical Aid

Dr. Ellis L. Rabben, Industrial Optometrist, Norfolk, Va. has developed, in conjunction with Willson Products, Inc., Reading, Pa., an optical aid for welders who wear bifocal glasses. The device, manufactured and marketed by Willson under the trade name "Weld-Aid Lens," is designed to help operators who depend on bifocal glasses for near vision.

Since the vision slit of the welding helmet is placed for looking straight ahead, it does not permit use of the bifocal segment, and welders who wear this type of glasses frequently suffer blurred vision, eyestrain and headaches, which seriously reduce their productivity and skill.

The lens corrects this condition by supplying clear and unobstructed near vision over the entire area of the window in the helmet, thus replacing the unusable segment power of the welder's prescription glasses. The lens consists of high grade optical glass accurately ground to a specific power and mounted securely in a durable plastic frame which fits easily into the average welding helmet.

It is available in two sizes, 2" x 4⅛" and 2" x 4¼" and in five powers: 0.75, 1.00, 1.25, 1.50 and 1.75. Complete instructions are furnished with each lens. To protect the Weld-Aid from front and rear pitting, it is recommended that it be placed between the cover and filter lenses.

Noise Muffler

A sonic ear valve that protects the ear drum from loud harmful noises and yet admits conversational tones is now available from Sigma Engineering Co., 1491-N No. Vine St., Los Angeles 28, Calif. Known as the Lee Sonic Ear-Valv, it is a precision-built mechanical ear protector which fits comfortably into the ear canal. It has no additional or dependent parts such as wires or batteries. It is definitely a valve—

a sonic filter—and not an ear plug. It is fully automatic in operation, requiring no adjustment.

The device eliminates the harmful effect of sudden blast-type noises on the ear drums and while doing so, leaves the ear canal open permitting the passage of normal voice level sounds. It also eliminates the force caused by the vacuum followng an explosion which may be harmful to the ear drum.

The valve is made of non-corrosive metal and soft rubber. It is light weight, yet sturdy enough to withstand dropping upon a hard surface.

Extension Platform

Atlas Industrial Corp., 849 39th St., Brooklyn 32, N. Y., announces a new Marquee Servicer made to reach a 22 ft.

NEW SAFETY EQUIPMENT FOR INDUSTRY

Further information on these new products and equipment may be obtained by writing direct to the manufacturer. It will help in identifying the product to mention this announcement.

ceiling. Comes in one piece with no erection required. This safe, dependable servicer is easily rolled, easily raised. It is a compact unit small enough to pass through any ordinary doorway. The all welded steel construction means safety, outrigger brace prevents tilting or rolling. It is ideal for overhead maintenance, painting, lighting, cleaning, etc.

Fork Trucks

A completely redesigned line of light capacity electric fork lift trucks is announced by Philadelphia Division, Yale & Towne Mfg. Co., 11,000 Roosevelt Blvd., Philadelphia 15, Pa. Available in capacities up to 2,000 pounds, the new trucks feature simplified automotive-type controls, hydraulic lift, and compact size. They are designed to fill the needs of manufacturing companies and distribution concerns who desire the advantages of sit-down operation, combined with a short wheelbase and maneuverability.

The sit-down feature of this new light capacity electric truck is coupled with automotive-type controls, steering wheel, foot acceleration, pedal brakes, and gear-shift-like lifting and tilt controls mounted within hand reach of the steering wheel.

New magnetic contactor control prevents careless driver from imposing unnecessarily severe loads on the motor. There is a time delay between speeds for smooth, uniform acceleration, preventing jack-rabbit starts that might shift and damage loads.

A special non-plugging device on the electric controller prevents reversal of power in any but first speeds. This guards against operators shifting from high forward to high reverse with resultant shock and load on the motor and drive unit. Other features include hypoid gearing for added strength in power transmission, inclined king pins to take the rough work out of steering, and hydraulic brakes. No braking takes place through the gear train.

The trucks are all-steel, electrically welded for strength and weight-saving. The fork carriage and elevating channel travel in upright channels by sealed ball bearing mounted rollers. The tilting mechanism is also hydraulically operated. It is actuated by two double acting piston type cylinders which provide load rigidity.

Respirator

The new compact Comfo Respirator developed by Mine Safety Appliances Co., Braddock, Thomas and Meade Sts., Pittsburgh, Pa., provides protection for workers in industries where toxic or fibrosis-producing dusts are hazards. The redesigned respirator, which has been approved by the U. S. Bureau of Mines, features a new type mineral wool filter which requires less than half the filter area and offers only half the breathing resistance of previous models with the same dust collecting efficiency.

Filter holders of the respirator are smaller in diameter and shallower in depth allowing more vision from all angles. The perforated metal filter covers are designed to snap on and off the filter holder enabling speedier changing of filters. The covers come off when pressed in the center and snap on when pressed at the sides.

The new models have a one-piece headband that may be worn on the neck or crown of the head depending upon personal preference. The cushion type facepiece, which is soft and pliable, assures a gas-tight seal for a wide range of facial contours. The half-mask facepieces are similar in design to those produced for military aircraft oxygen masks.

Drum for Shipping Liquids

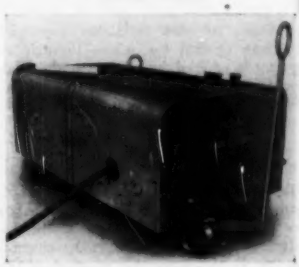
United States Rubber Co. has developed a new 55-gallon synthetic rubber-fabric drum, suitable for shipping liquids, which can be collapsed after emptying, is returnable and reusable. The new drum should effect sizable savings in return shipping costs, since more than 2500 collapsed drums can be shipped in a standard railroad box car that would hold only 300 rigid drums.

Experimental tests made by the manufacturer indicate that the new drum will be suitable for the shipment of oils, greases, fats, acids, paints, emulsions, soaps, dry powders and a variety of pharmaceutical and industrial chemicals. It is also believed to be practical for transporting liquids by air for the military and for dropping liquids by parachute to ground troops.

It is made of Ustex cord fabric, impregnated with synthetic rubber and molded in one piece. (Ustex cord is a strong, low stretch cotton textile.) The result is a tough, flexible drum approximating the size of a regular barrel or drum. It is equipped with simple fittings for filling, emptying, lifting, and handling.

Electric Steam Cleaner

Coal mining machinery now can be completely, quickly and safely degreased and cleaned at any point in a mine where electricity and water are available, with the new MSA All-Electric Steam Cleaner just announced by Mine Safety Appliances Co., Braddock, Thomas and Meade Sts., Pittsburgh 8, Pa.



Many major time and labor-saving advantages are reported for the new equipment, which has been approved by the U. S. Bureau of Mines. Machines to be cleaned need not be moved from the

NEW SAFETY EQUIPMENT FOR INDUSTRY

Further information on these new products and equipment may be obtained by writing direct to the manufacturer. It will help in identifying the product to mention this announcement.

operating location. Cleaning can be done with labor available at the mine.

MSA Cleaning Compound, non-flammable powdered cleaner, has been developed for use in a heated water solution. Grease and dirt are cut, dissolved and driven from machinery with a blast of the steam solution which has passed through an electrically heated manifold in the cleaning mechanism. Besides keeping mining machinery operating efficiently, regular cleaning also eliminates fire hazards caused by accumulation of grease, oil and coal dust on equipment.

A 20-gallon tank on the machine holds enough of the cleaner in solution for four hours of steady operation. Water is supplied by an ordinary hose at the rate of 60 gallons per hour at pressures from gravity to 150 pounds per square inch. Solution and water are automatically mixed in the proper proportion and passed through a series of five electric heaters before being supplied as steam to the delivery system.

Three types of nozzles are supplied, two for cleaning flat surfaces and the other for irregular surfaces. Automatic controls and safety devices permit operation of the machine without further attention after the flow of cleaner has started through the delivery system.

A standard model is available for use in fresh air and underground or outside repair shops. The cleaners, patented and built under Homestead-Yeager design, are constructed of reinforced and welded steel and are completely portable. They weigh about 800 pounds. Their over-all height of 32 inches permits their use in low coal mines. Operating pressure is from 100 to 120 pounds per square inch.

News Items

Tuf-Cote is now available from all American Optical Co. offices through an agreement entered into between the Wallace Optical Co., Inc. of Detroit, Mich., and the American Optical Co. of Southbridge, Mass..

* * *

Due to expanding sales volume, Wyandotte Chemicals Corp. has established a new department to be known as the Industrial, Railroad and Aircraft Department. Dr. Roy E. Heath becomes manager of the new department. Dr. Heath joined Wyandotte Chemicals in 1942, and was loaned during World War II to the Manhattan Project. He is a graduate of Albion College, obtained his doctor's degree from Western Reserve, and was a member of the chemicals staff of Wisconsin and Western Reserve Universities.

Robert J. Racine advances from Wyandotte Chemicals' Technical Service Department to the newly created post of manager, Industrial Sales. A graduate of Michigan College of Mining and Technology, he joined Wyandotte Chemicals in 1946 and has several years of selling experience in the industrial field.

James L. Ramsey, newly appointed manager of Railroad Sales, joined Wyandotte Chemicals in 1945. He was graduated from Indiana Technical College and was previously employed by the Norfolk and Western Railroad. For the past several years he has been a special railroad representative for the Wyandotte organization.

Edward J. Kubis joined Wyandotte Chemicals Industrial Laboratories in 1948. Following graduation from University of Detroit and prior to joining Wyandotte, he was supervisor of cleaning, plating and painting processes for Briggs Manufacturing Co. He has recently been transferred from Wyandotte Chemicals Research and Development Division to the Technical Service Department.

* * *

H. B. Conrad, formerly assistant to the manager of The Diversey Corporation's Southwestern Division in Kansas City, has been promoted to manager. Diversey manufactures and sells cleaners and disinfectants for food plant sanitation, industrial insecticides and other disinfecting and deodorizing products.

Mr. Conrad brings to his new position a broad background of sales with Diversey. He began in 1942 as a representative in the Farm Quality Control Department. He was advanced from territory man to senior salesman and to district manager in the Southern Division.

* * *

The Board of Directors of Willson Products, Inc., Reading, Pa., has announced the election of Thomas A. Willson, Jr., as Vice-President. Mr. Willson will also continue with his duties as assistant secretary of the corporation, a position he has held since 1947.

Lawrence H. Souder was appointed Executive Vice President of National Foam System, Inc., West Chester, Pa., at the March meeting of the Board of Directors. Mr. Souder becomes Executive Vice President after 43 years of association with the present management. He will continue to make his headquarters at the main plant in West Chester, Pa., where all types of foam fire protection equipment are manufactured.

* * *

The Diversey Corp., 1820 Roscoe St., Chicago, which produces and sells chemicals for food plant and industrial cleaning and sanitation, has taken a ten-year lease on a steel frame and brick building formerly occupied by Edgar T. Ward's Son Steel Co., 400 Frelinghuysen Ave., Newark, N. J. The new building will provide Diversey's Eastern Division, formerly located in New York City, with a new sales office headquarters and manufacturing facilities.

Space in the building also will be provided for laboratory research. Eric C. Foote, Jr., formerly manager of the Diversey plant at Port Credit, Ont., will serve in the same capacity at the Newark plant.

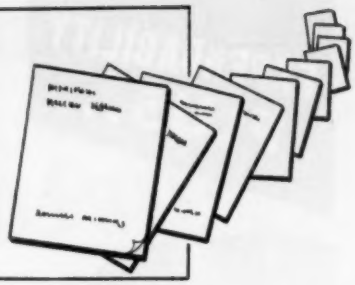
Home Safety Merit Awards

Industrial firms that have extended their safety promotion efforts to the homes of employees through off-the-job safety campaigns as well as other active organizations, are urged by the Home Safety Conference of the National Safety Council to qualify for the annual Merit Awards to honor exceptional service to home safety education.

Requests for questionnaire forms should be addressed to Thomas Fansler, staff secretary, Home Safety Conference, National Safety Council, 425 North Michigan Ave., Chicago 11, Ill.

TRADE PUBLICATIONS
in the Safety Field

These trade publications will help you to keep up-to-the-minute on new products and developments in industrial health and safety equipment. They are free and will be sent by manufacturers without obligation to readers of NATIONAL SAFETY NEWS who are responsible for this work. Send in the coupon below checked for the publications you desire. Please make your requests promptly.



1. **Robot Operators:** Literature, illustrated with pictures and diagrams, shows what has been done in the field of automatic operating equipment for doors in the last 20 years. Robot Appliances, Inc.

2. **"Floor Maintenance":** Illustrated by numerous photographs, diagrams and drawings, this booklet presents a complete, effective and economical program for the care of wood, concrete, terrazzo, linoleum, tile and other floors. Tremco Mfg. Co.

3. **Wood Sole Shoes:** This 16-page catalog contains a complete listing of wood sole shoes for practically all industries, with a section devoted to women's footwear. Different models and styles for particular industries are fully described. F. J. Stahmer Shoe Co.

4. **"Fotolectric" Systems:** Bulletin 850 describes "Fotolectric" systems for solving general problems such as: counting, sorting, and grading; and specific problems of control, detection and regulation. Also information on smoke detecting arrangements. Worner Electronic Devices.

5. **"Planned Lighting for Industry":** This 47-page publication, Bulletin LD-4, outlines the benefits of good industrial lighting in the form of increased efficiency, safety and morale, improved quality, lowered cost, improved health and conserved manpower. General Electric Co.

6. **Heat Resisting Paints:** Two heat resisting aluminum paints: a 1000 degree heat resisting interior paint, and a 550 degree heat resisting exterior paint are described in this folder. Other special aluminum paints are also described. Skybryte Co.

7. **Protective Clothing:** Catalog describes a complete line of safety caps, arm guards, for protection against dermatitis caused by acids and cutting oils, and lightweight, long lasting protective aprons. Price list included. Klear-Vu Products Co., Inc.

8. **Antiseptic Liquid Detergent:** Detergent which cleans, deodorizes and sanitizes in a simultaneous operation is described in this folder. Product is well suited for use in industrial plants, hospitals, hotels and office buildings. Piatt & Smillie Chemicals, Inc.

9. **Flame Failure Protection:** This 32-page catalog is actually a complete manual on flame failure protection for industrial application. Included in Catalog 9601 is information on the new "flame rectification principle" of operation, and 24 different safeguard systems. Minneapolis Honeywell Regulator Co.

10. **Maintenance File:** A complete file of information on floor maintenance products and machinery is available. A method for every type of floor is included. Detailed literature on vacuums, rug scrubbers, floor machines, waxes, cleaners and sealers included. Multi-Clean Products Co.

11. **"Who's Watching Your Watchman":** Pamphlet fully describes watchclock systems: each station contains a key which watchman inserts in key-hole of clock. Registration is made, in sequence, as to time and place throughout period of tour. Chicago Watchclock Div., Great Lakes Industries, Inc.

12. **Protective Equipment for Welders:** Circular describes and illustrates a wide range of eye protective devices for both gas and arc welding, and includes product information on respiratory equipment for welders. Accessories are also described. Willson Products, Inc.

13. **Steam Detergent Cleaning:** Folder points up the important time, work and cost savings obtainable with steam detergent cleaning. It also lists specific applications in many industrial locations where this method establishes noteworthy economies. Oakite Products, Inc.

14. **Open Steel Flooring:** Various types of "Tri-Lok" open steel flooring, safety treads and armoring are described in Catalog 1103. Specification data, safe load tables, installation methods and other pertinent information included. Dravo Corp.

15. **Snow Melting Systems:** This study of 50 snow melting systems traces their growth since the first recorded in 1925. Text is devoted to design, piping properties, use of anti-freeze, paving design and fill, installation and operating costs. A. M. Byers Co.

16. **Sweatbands:** Folder describes low-cost expanded cotton sweatbands. Bands are lightweight, have no metal parts, and are constructed of four layers of expanded cotton and gauze. General Bandages, Inc.

17. **Steel Rolling Doors:** Catalog contains the most up-to-date details on the interlocking steel-slat rolling door. Included are: service doors, fire doors, bifold doors, rol-top sectional overhead doors, steel rolling grills and special doors Kinnear Mfg. Co.

18. **Hypressure Jenny:** Brochure describes hypressure jenny that has 300 gallons per hour capacity as steam cleaner, and will provide full heat supply in two minutes as a heat generator. Stationary and trailer mounted models described. Hypressure Jenny Division, Homestead Valve Mfg. Co.

NATIONAL SAFETY NEWS JULY, 1951

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